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The Economist

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# Politics this week

Jun 7th 2007
From The Economist print edition

AP

Amid the usual noisy demonstrations from anti-globalisation protesters, the annual **G8 summit** met in Heiligendamm, northern Germany. Thanks to American opposition (and a new proposal for negotiations that George Bush unveiled last week), the summit looked unlikely to reach agreement on climate change, which its host Angela Merkel had put top of the agenda.

The pre-summit atmosphere was soured by **Russia's** president, Vladimir Putin. He threatened to retaliate against the deployment of limited American missile defences in Poland and the Czech Republic by targeting Russia's nuclear missiles on Europe again.

Rumours that **Turkey** had invaded **northern Iraq** in force were denied. But Turkish troops and armour continued to mass on the border. Senior figures in both the army and the government favour a cross-border operation in pursuit of Kurdish PKK fighters. See article

The **Basque separatist group** ETA formally ended the ceasefire that it had declared in March 2006. The announcement was a blow to the Spanish prime minister, José Luis Rodríguez Zapatero, who had stuck his neck out to negotiate with ETA. He faces a general election next March. See article

The European Union decided to recommence talks with **Serbia** on a stabilisation agreement, the usual prelude to membership talks, which had been suspended last year because of Serbia's failure to hand over the Bosnian Serb wartime general, Ratko Mladic, to the war-crimes tribunal at The Hague. Some diplomats expect Serbia to catch Mr Mladic soon. See article

## War weary

**Israel** held training exercises for a possible clash with **Syria** as Ehud Olmert, the prime minister, tried to dampen fears at home of a war this summer. But, in a change from previous statements, he said Israel would like to hold direct talks with Syria.

France argued for an aid corridor from Chad into Sudan's war-torn **Darfur** region to help the relief operation there. France is the only Western country with troops already in Chad that could protect such a channel.

AFP

A joint report by two UN agencies, the Food and Agriculture Organisation and the World Food Programme, said that 2.1m **Zimbabweans** may be dangerously short of food by the third quarter of this year. That figure may rise to more than 4m (a third of all Zimbabweans) in the first three months of next year.

The trial of **Liberia's** former president, Charles Taylor, began in The Hague. He has been indicted on 11 charges of war crimes and crimes against humanity for his alleged role in a civil war in Sierra Leone; the trial could last for up to 18 months.

## Jail time

**Lewis "Scooter" Libby**, the former chief of staff to Dick Cheney, was sentenced to two-and-a-half years in prison for perjury and for obstructing an investigation into the naming of a CIA officer, whose husband had criticised the administration over Iraq. Mr Libby was convicted in March, but some conservative pundits and politicians are asking George Bush to use his powers to pardon him because, they say, he is just a scapegoat.

**William Jefferson**, a Democratic congressman from New Orleans, was indicted by federal authorities on 16 charges for allegedly accepting bribes. He resigned from his seat on the House of Representatives' small-business committee, but Republicans said the Democrats were moving too slowly to eject him from Congress. See article

War-crimes charges against two detainees held at **Guantánamo Bay** were dismissed by military judges on the ground that the accused had not been designated as “unlawful” enemy combatants, as required for their trial before the new military commissions. It is the latest setback for the administration's much-criticised system for dealing with suspected terrorists. See article

The Republican presidential candidates held their third **debate**. As well as Iraq (where Mr Bush was criticised on all sides), the deal on immigration legislation reached between the White House and key senators was to the fore. Several candidates also endorsed the possibility of using tactical nuclear weapons against Iran if it refused to end its nuclear programme. The Democratic candidates' second debate was, by contrast, a tame affair. See article

## Spoiling the plot

Ten people in America were arrested in connection with an alleged plot to topple the government of **Laos**. Vang Pao, an ethnic Hmong and a former military commander, and others were accused of trying to buy guns, missiles and explosives to prepare for an attempted coup. See article

In the midst of a domestic crisis, General Pervez Musharraf, **Pakistan's** president, issued a decree giving regulators new powers to curb broadcasters. After widespread protests, the government promised not to implement the decree until it had been reviewed by a committee. See article

China produced its first national plan for tackling **climate change**, pledging to curb its greenhouse-gas emissions, but not at the expense of economic growth. In Australia, John Howard, the prime minister, announced a change of policy, committing the country to capping emissions regardless of China's actions. See article

Zakia Zaki, the owner of a radio station in **Afghanistan,** was shot dead at her home. Ms Zaki's murder followed that of a female newsreader. The journalists' association said the killings showed how difficult the working climate had become for journalists, especially women.

EPA

## Gesture politics

Álvaro Uribe, **Colombia's** president, freed almost 200 imprisoned FARC guerrillas including Rodrigo Granda, one of its leaders, in an attempt to secure the release of some 60 guerrilla hostages, including Ingrid Betancourt, a Franco-Colombian politician. See article

In a closely watched decision that boosts competition policy in the country, **Mexico's** Supreme Court struck down a provision in a law passed last year that would have allowed Mexico's two television companies free use of the radio spectrum to offer telephone and internet services.

In his first television interview since stomach surgery last year, Cuba's president, **Fidel Castro**, shed no light as to whether he would resume any official duties.

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# Business this week

Jun 7th 2007
From The Economist print edition

**Private-equity firms** came under the spotlight after Gordon Brown, Britain's chancellor of the exchequer, promised to bring “justice and equity” to the industry's tax regime. Mr Brown, who will become prime minister later this month when Tony Blair leaves office, was speaking at a union conference where there was much discussion about the recent criticism, from the chairman of a prominent fund, of how managers at such firms pay a lower rate of tax than their office cleaners do. Private-equity managers have faced similar criticisms in America, where Congress held hearings in May. See article

Two private-equity firms agreed to buy **Avaya**, which provides telecoms equipment and networks to businesses, for $8.2 billion, the latest in a series of big buy-outs of technology-oriented companies.

It emerged that Ron Burkle, a supermarket magnate from California, has been approached by the employees' union at **Dow Jones**, the publisher of the *Wall Street Journal*, about the possibility of a rival bid to Rupert Murdoch's offer for the company. Mr Murdoch is in negotiations with the Bancroft family, which controls Dow Jones. Mr Burkle failed recently in a bid, with another investor, to buy the Tribune media group.

## Another Russian fall-out

Vladimir Putin criticised **BP's** Russian joint venture, TNK-BP, over its failure to meet production targets at the **Kovykta** gas field in eastern Siberia, in which the firm owns a majority stake. Speaking three days after regulators delayed a decision on whether to revoke the licence to exploit the field, the Russian president dismissed TNK-BP's argument that the authorities and Gazprom, the state-owned gas giant, were to blame for Kovykta's slow development. Analysts expect TNK-BP to lose the licence unless a last-minute deal can be reached to sell a stake in the $20 billion project to one of Russia's state energy firms.

**Colony Capital**, a private investment firm based in Los Angeles, won the bidding for control of **Tamoil**, a Libyan state-owned company that operates oil refineries and petrol stations in Europe. Colony will pay *euro*4 billion ($5.4 billion) for 65% of Oilinvest, Tamoil's parent company, and Libya, which initiated a privatisation programme in 2003, will retain the remaining 35%.

**Elevation Partners**, a private-equity firm that lists Bono, a rock singer, as a partner, agreed to take a 25% stake worth $325m in **Palm**. The maker of hand-held mobile devices has been struggling of late to compete with wildly popular products, like the BlackBerry. The agreement with Elevation will bring in a new management team, including Jon Rubinstein, who headed Apple's iPod unit, as executive chairman.

**Ryanair** reported that net profit had risen by 33%, to *euro*401m ($515m), for the year ending March 31st. But Europe's biggest low-cost airline said it expected profit to slow in this fiscal year because intense competition with other carriers would lead to heavy discounting of passenger fares.

## Unable to harvest their Oats

The $565m takeover of **Wild Oats Markets**, America's second-biggest natural- and organic-food retailer, by **Whole Foods Market**, its biggest, was thrown into doubt when the Federal Trade Commission said it would try to block the deal. The FTC is concerned about the effect on competition among specialist retailers in natural and organic groceries, but Whole Foods argues that the regulator has excluded the big supermarket chains, which are expanding their natural and organic lines, from its analysis.

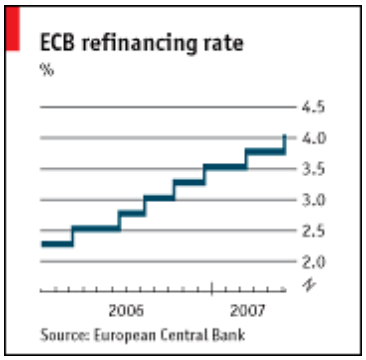
**Segro**, a British property company, said it would sell its portfolio of science-research parks and properties in California to **Health Care Property Investors** for $2.9 billion. The portfolio includes the Genentech complex near San Francisco. Segro wants to concentrate on Europe's market for office space.

Stockmarkets endured a rocky week. The **Dow Jones Industrial Average** had its biggest two-day drop

since February as comments made by Ben Bernanke, chairman of the Federal Reserve, made markets think an interest-rate cut was much less likely. In China, the government tried to calm investors following last week's losses, caused by an increase in a tax on share trading that was intended to cool the markets. In response to the official reassurances the **Shanghai composite share index** fell by 8.3% on June 4th.

## More to come?

The European Central Bank raised its benchmark **interest rate** for the euro area by a quarter of a percentage point to 4%, its highest level since September 2001. Jean-Claude Trichet, the bank's president, cautioned that inflation risks remained “on the upside”. Markets do not think the ECB had finished raising rates yet. See article

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# KAL's cartoon

Jun 7th 2007
From The Economist print edition

Kevin Kallaugher

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Innovation

# Lessons from Apple

Jun 7th 2007
From The Economist print edition

**What other companies can learn from California's master of innovation**

Getty Images

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FOR a company that looked doomed a decade ago, it has been quite a comeback. Today Apple is literally an iconic company. Look at your iPod: the company name appears only in the small print. Some of the power of its brand comes from the extraordinary story of a computer company rescued from near-collapse by its co-founder, Steve Jobs, who returned to Apple in 1997 after years of exile, reinvented it as a consumer-electronics firm and is now taking it into the billion-unit-a-year mobile-phone industry (see article). But mostly Apple's zest comes from its reputation for inventiveness. In polls of the world's most innovative firms it consistently ranks first. From its first computer in 1977 to the mouse-driven Macintosh in 1984, the iPod music-player in 2001 and now the iPhone, which goes on sale in America this month, Apple has prospered by keeping just ahead of the times.

The company, which is shortly to join the S&P 100 index of leading companies, is not without its critics. The not-always-lovable Mr Jobs is still stuck in a greedy-looking share-option “backdating” scandal. The firm has come under attack for refusing to make its operating-system and music-protection software available to others (a price worth paying, Apple responds, for greater reliability and consistency). And there are grumbles about manufacturing defects and customer service.

Apple is hardly alone in the high-tech industry when it comes to duff gadgets and unhelpful call centres, but in other respects it is highly unusual. In particular, it inspires an almost religious fervour among its customers. That is no doubt helped by the fact that its corporate biography is so closely bound up with the mercurial Mr Jobs, a rare showman in his industry. Yet for all its flaws and quirks, Apple has at least four important wider lessons to teach other companies.

## Not invented here, and very welcome

The first is that innovation can come from without as well as within. Apple is widely assumed to be an innovator in the tradition of Thomas Edison or Bell Laboratories, locking its engineers away to cook up new ideas and basing products on their moments of inspiration. In fact, its real skill lies in stitching together its own ideas with technologies from outside and then wrapping the results in elegant software and stylish design. The idea for the iPod, for example, was originally dreamt up by a consultant whom Apple hired to run the project. It was assembled by combining off-the-shelf parts with in-house ingredients such as its distinctive, easily used system of controls. And it was designed to work closely

with Apple's iTunes jukebox software, which was also bought in and then overhauled and improved. Apple is, in short, an orchestrator and integrator of technologies, unafraid to bring in ideas from outside but always adding its own twists.

This approach, known as “network innovation”, is not limited to electronics. It has also been embraced by companies such as Procter & Gamble, BT and several drugs giants, all of which have realised the power of admitting that not all good ideas start at home. Making network innovation work involves cultivating contacts with start-ups and academic researchers, constantly scouting for new ideas and ensuring that engineers do not fall prey to “not invented here” syndrome, which always values in-house ideas over those from outside.

Second, Apple illustrates the importance of designing new products around the needs of the user, not the demands of the technology. Too many technology firms think that clever innards are enough to sell their products, resulting in gizmos designed by engineers for engineers. Apple has consistently combined clever technology with simplicity and ease of use. The iPod was not the first digital-music player, but it was the first to make transferring and organising music, and buying it online, easy enough for almost anyone to have a go. Similarly, the iPhone is not the first mobile phone to incorporate a music-player, web browser or e-mail software. But most existing “smartphones” require you to be pretty smart to use them.

Apple is not alone in its pursuit of simplicity. Philips, a Dutch electronics giant, is trying a similar approach. Niklas Zennström and Janus Friis, perhaps the most Jobsian of Europe's geeks, took an existing but fiddly technology, internet telephony, to a mass audience by making it simple, with Skype; they hope to do the same for internet television. But too few technology firms see “ease of use” as an end in itself.

## Stay hungry, stay foolish

Listening to customers is generally a good idea, but it is not the whole story. For all the talk of “user-centric innovation” and allowing feedback from customers to dictate new product designs, a third lesson from Apple is that smart companies should sometimes ignore what the market says it wants today. The iPod was ridiculed when it was launched in 2001, but Mr Jobs stuck by his instinct. Nintendo has done something similar with its popular motion-controlled video-game console, the Wii. Rather than designing a machine for existing gamers, it gambled that non-gamers represented an untapped market and devised a machine with far broader appeal.

The fourth lesson from Apple is to “fail wisely”. The Macintosh was born from the wreckage of the Lisa, an earlier product that flopped; the iPhone is a response to the failure of Apple's original music phone, produced in conjunction with Motorola. Both times, Apple learned from its mistakes and tried again. Its recent computers have been based on technology developed at NeXT, a company Mr Jobs set up in the 1980s that appeared to have failed and was then acquired by Apple. The wider lesson is not to stigmatise failure but to tolerate it and learn from it: Europe's inability to create a rival to Silicon Valley owes much to its tougher bankruptcy laws.

None of these things, of course, guarantees success: you can buy in clever ideas, pursue simplicity, ignore focus groups and fail wisely—and still go bust. Apple very nearly did so itself. No doubt the bumptious Mr Jobs will overreach himself again: the iPhone's success is not guaranteed. But for the moment at least it is hard to think of a large company that better epitomises the art of innovation than Apple.

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Spain and ETA

# Ceasefire no more

Jun 7th 2007
From The Economist print edition

**Europe's worst nationalist terrorist problem badly needs a bipartisan approach**

Reuters

SO HOW long is permanent? Just over 14 months ago the Basque separatist group ETA trumpeted its promise of a “permanent ceasefire”. It first broke its word as early as last December when it blew up a van at Madrid airport, killing two Ecuadoreans. This week it backed actions with words, formally declaring its supposedly permanent truce at an end.

Coming soon after his Socialist Party did badly in local elections, this is a huge blow to Spain's prime minister, José Luis Rodríguez Zapatero. Over the past three years he has personally gone out of his way to start a Basque peace process and keep it going. December's airport bombing was a big setback for him. The ending of the ceasefire, which seems sure to be followed by a renewed outbreak of violence, is likely to damage him even more—and could yet put paid to his party's chances of winning next March's election (see article).

The cynicism of ETA's ceasefire, which it not only broke but also used to rearm itself, has been shameless. Yet it is a weaker organisation than it was. It has killed only four people in the past four years, compared with 800 in the previous 36. The Spanish police now co-operate more effectively with their French counterparts. Even so, it is wrong to believe, as Spain's opposition People's Party (PP) avers, that ETA terrorism can be dealt with by force and punishment alone.

Are there parallels and contrasts to be drawn between ETA and the IRA in Northern Ireland? Certainly, there is a dismaying difference between the resumption of Basque terrorism and last month's power-sharing deal between Ian Paisley of Ulster's Democratic Unionists and Martin McGuinness of Sinn Fein. Yet such comparisons are seldom exact. The Basque region has long had far more power devolved to it than Northern Ireland. It has no equivalent to the sectarian divide of Catholics and Protestants, nor to the dual involvement of two governments, Britain's in London and Ireland's in Dublin. Spain's moves towards federalism are a work in progress that bears little resemblance to anything happening in Britain.

There are, however, two other differences with Northern Ireland that the politicians in Madrid should reflect upon and learn from. One is that British governments seem less exercised about any threat that a part of their country might one day break away. If a clear majority in Northern Ireland—or in Scotland, for that matter—voted for independence, most politicians in London would accept the result. In contrast, all governments in Madrid remain pathologically hostile to any such idea anywhere in Spain.

## No time for partisanship

The second difference is that, right from its inception in the mid-1980s, support for the Northern Ireland peace process was wholly bipartisan. The Labour opposition at Westminster firmly backed the Tories in their negotiations with Dublin and with Sinn Fein, under both Margaret Thatcher and John Major. Similarly, the Conservative opposition has been solidly behind Tony Blair.

In contrast, the PP has fiercely resisted Mr Zapatero's every move over the Basque problem. The party remains bitter about its unexpected loss of the March 2004 election, which fell a few days after the Madrid train bombings. Many in the PP still insist that ETA was somehow involved, despite all the evidence that the bombings were the work of Islamist terrorists. It was brave, if perhaps naive, of Mr Zapatero to try to make peace in the Basque region on his own. But the PP's hostility made his task vastly more difficult. A prerequisite for future plans to deal with ETA must be that the two main parties in Spain find common ground first.

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India's economy

# Goldilocks tests the vindaloo

Jun 7th 2007
From The Economist print edition

**India's monetary policy is still too loose**

AMERICA was the original “Goldilocks economy” (neither too hot nor too cold), but the fair maiden has now moved to India. The bears there prefer curry to porridge, but once again Goldilocks is reported to judge the economy “just right”, with strong growth and falling inflation. Indeed, concerns earlier this year about overheating are fading. Wholesale-price inflation has dropped from 6.7% to 5.1%, even as India's GDP jumped by 9.4% in the fiscal year ending in March—its second-fastest growth on record. Palaniappan Chidambaram, the elated finance minister, says it is time to shed any scepticism about the sustainability of India's strong growth. *The Economist* remains unconvinced.

India has much to cheer about. The economic reforms of the 1990s and stronger investment have lifted its sustainable rate of growth. But demand has also been inflated by an unduly lax monetary policy. The government thinks its target of 9% average annual growth in the next five years can be achieved without pushing inflation up. But India displays more symptoms of overheating than China does: inflation is much higher, bank lending is growing almost twice as fast, and Indian share prices have risen by twice as much in dollar terms as China's since the end of 2002. The government, initially slow to react to higher prices, has cracked down this year with a series of administrative and fiscal measures, notably banning wheat exports and lowering fuel taxes; and the Reserve Bank of India (RBI) has tightened monetary policy.

Many local economists think there has now been enough tightening. Yet the idea that Indian inflation is tamed seems to be based on five common myths. The first is that the run-up in inflation could largely be attributed to higher food prices caused by “supply shocks” in the agriculture industry; so monetary policy does not need to be tightened. In fact, manufactured goods have accounted for much more of the rise in inflation over the past year. The main reason for higher prices is that aggregate demand is growing faster than supply.

A second misconception is that the government's various schemes this year, like the wheat-export ban, have done a better job in reducing inflation than monetary policy would do. But such measures merely suppress the symptoms; they do not tackle the underlying problem. Inflation can be genuinely reduced only by a period of slower growth. And although the various schemes have helped to reduce wholesale-price inflation, the measure that the government likes to focus on, consumer-price inflation, the choice of all other central banks, is still running at almost 8% (taking a crude average of the rates for industrial, non-manual and agricultural workers).

A third myth is that the increase in fixed capital spending from 23% of GDP in 2001 to 29.5% last year will immediately lift the economy's speed limit. In the long term investment will indeed add to productive capacity, but in the short term higher capital spending boosts demand and adds to overheating.

The fourth fairy tale is based on the idea that the interest-rate rises over the past year must eventually have more of an effect—and thus slow the economy in the coming months. Interest-rate hikes certainly take time to work. The snag is that in India rates have risen by less than the increase in consumer-price inflation, and monetary conditions are still too loose. India has by far the lowest real interest rates among the world's big economies. The RBI, constrained by politicians, has been too timid in cooling domestic demand. Its attempts, until recently, to hold down the rupee through heavy foreign-exchange intervention forced it to run an overly lax monetary policy. The good news is that the RBI is now allowing the rupee to rise (see article), which should make it easier to fight inflation—if the government allows it to do that.

Lastly some critics of the central bank say that proper monetary tightening would kill the expansion. In fact, expansion is far more likely to end prematurely if inflation gets out of control and imbalances widen, raising the risk of a hard landing. Controlling inflation is the best way to sustain growth.

## The bear necessities

In the longer run India's ability to grow faster depends on it unblocking its infamous infrastructure bottlenecks, notably its lousy roads, ports and power. The increase in electricity capacity over the past five years was only 57% of its targeted level, so power cuts have worsened. Skills shortages will be eased only by improving education and reforming India's rigid labour laws. This will all take time. Meanwhile, India will have to accept slower growth to keep inflation in check.

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Private equity

# Carried away

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From The Economist print edition

**One tax break for private equity is unfair—but don't blame the buy-out barons**

David Simonds

ON BOTH sides of the Atlantic private-equity firms have faced all sorts of populist barracking recently for profiting at the expense of workers. The financiers have sidestepped most of these charges with pin-striped aplomb—and rightly so. The debate has been more about class war than economics. Most of the accusations against the locusts and barbarians have been false; virtually all the remedies would do more harm than good to an industry that has been remarkably useful, not least when it comes to creating jobs.

Tax has always been part of this assault. Critics initially focused on the fact that interest payments are tax deductible, but dividends are not. This attack seemed unconvincing: interest deductibility does help highly leveraged firms more than most, but borrowing money is hardly an option just limited to private-equity ones. Now a new tax-related criticism has emerged—to do with the low taxes that private-equity partners pay on their income. Once again, it comes suspiciously larded in the language of envy (shadowy moneymen are dodging taxes that decent workers pay). But this time the critics have a point. The rules should be changed.

The argument centres on one long-established discrepancy—the gentler tax treatment of capital gains than annual income. In America this dates back to the 1920s, and was originally intended to reward small-business owners and entrepreneurs for “sweat equity”—the hard work they put in to building a business from scratch. Now it is benefiting people in private-equity firms (and to a lesser extent hedge funds), who receive a large part of their pay in the form of “carried interest”—usually 20% of investment gains. In America these are taxed at the 15% capital-gains rate, rather than 35% income tax. In Britain the benefits are even more generous. Those who hold an investment for two years can pay 10% on the gains, compared with a 40% rate of income tax.

In theory, an efficient tax system would tax both income and capital gains at the same rate—and allow people to make their decisions on merit alone. But even if you think capital gains and income should be taxed differently, carried interest looks like income, not equity, and should be treated as such. It is much closer to a performance fee than an equity stake (managers can only gain from the carried interest, which cannot be negative). The obvious analogy is with the share options awarded to company managers, which are taxed as income.

One worry about closing this loophole is that venture-capital companies and other limited partnerships that focus on start-ups might well find their managers caught in the fallout. On closer inspection, this seems unlikely. Venture capitalism has done much better in America than Britain, although the incentive from carried interest is bigger in the latter. The industry's success clearly depends on other things than

tax.

A bigger danger is that in seeking to fix one relatively small thing politicians will get carried away. Gordon Brown, courting the unions this week on his coronation march to Britain's highest office, talked about ensuring “justice and integrity” in the tax treatment of private equity; one union boss was quick to crow that “the fat cats are losing the argument on tax”. London's tabloids are also hunting for tubby felines: a British private-equity investor, Nicholas Ferguson, won approving headlines on June 4th when he protested that private-equity executives were charged less tax than office cleaners.

In America the issue is being dealt with more cautiously, partly because of intense lobbying by the venture capitalists who have a much better standing in Congress than private-equity firms do. Even so, two prominent members of the Senate Finance Committee, Max Baucus and Chuck Grassley, met industry executives and academics last month to explore the tax treatment of private-equity fees. Increasingly, American unions are returning to the language of redistributive justice.

## Concentrate on the good part of the story

The private-equity industry would do well to heed this populism. It has, on the whole, a good story to tell. As a force for efficiency, the industry is more often a source of investment and new jobs than a rapacious asset stripper. To work its magic, private equity does not need an unfair tax break, designed for another age and another set of entrepreneurs.

There are lessons too for politicians. When authorities tinker with the tax system to favour some forms of capital over another, the distortions they create usually come at a cost. If you think the tax system is unfair, blame the people who created it, not the financiers who took advantage of it.

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Recycling

# The price of virtue

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From The Economist print edition

**How to get people recycling more—even if they do not particularly want to**

PLASTIC here, newspapers there, bottles in that pile, tin cans over there. Across the rich world tonight a small army of worthy householders will pick through their rubbish to ready it for the recyclers. It is hardly pleasant work, but at least recyclers bear the mark of civic virtue—unlike those ghastly, unrecycling planet-wreckers next door.

That mix of indignation and righteousness is an odd attitude to hold towards a week's yellowing copies of the *Times* and a few empty wine bottles. But it is what Ken Livingstone, London's mayor, taps into when he condemns expensive four-by-four “Chelsea tractors” for the petrol they consume and the fumes they emit (even if sports cars are more extravagant). When free-riders, unrestrained and undertaxed, are thought to trample over the diligence of others, the others soon become peeved. Why should you recycle if the extra room in the landfill is taken up by the rubbish of those too selfish or lazy to care? It is the moral expression of a market failure.

Unfortunately, it is also an invitation to bureaucracy to do its worst. Recycling is too often too complex—paper but not cardboard, plastic or no plastic, and so on. It is littered with targets and directives, requiring this and mandating that, without much sign that the thresholds are well-founded. Indeed, plenty of people suspect that lorry-loads of stuff collected for recycling end up in landfill instead. That is a pity, because it discourages a useful practice.

## Selling rubbish

It should not be taken for granted that recycling is more efficient than chucking something away. Comparing all the costs, including collection, landfill, disposal, pollution and the value of new materials is difficult. But the signs are that recycling usually does make sense. A study by the Technical University of Denmark looked at 55 products and compared the effects of burying, burning or recycling them. More than 80% of the time, the researchers found, recycling was the most efficient thing to do with household rubbish. There were exceptions—Britain imports too much green glass (all that wine), which is wastefully ground into aggregates and sand for building; it would be more economically efficient and environmentally friendly to throw the bottles away. But the savings are mostly worthwhile. Recycling aluminium requires 95% less energy that making it from scratch; the figure is 70% for plastics and 40% for paper (see article).

So what is the best way to get more people to recycle more? The first step is to use new technologies that allow for a “single stream” of recyclable waste which is sorted on a conveyor belt using an arsenal of

hands, “spinning disc” screens and sorting machines. People are more inclined to recycle things if they do not have to sort them into different bins. San Francisco switched to single-stream recycling a few years ago and now boasts one of the highest recycling rates in America.

The second step is to acknowledge that the best way of recycling waste may well be to sell it, often to emerging markets. That is controversial, because of the suspicion that the waste will be dumped, or that workers and the environment will be poorly protected. Yet recycling has economies of scale and the transport can be virtually free—filling up the containers that came to the West full of clothes and electronics and would otherwise return empty to China. What's more, those who are prepared to buy waste are likely to make good use of it.

The last step is to make people pay for their unrecyclable waste and reward them for what they recycle. Electronic tags fixed to bins can weigh each household's waste and bill for it accordingly. Recycling, even if cheaper than outright disposal, will not usually pay for itself, but local authorities can share the savings with households. There are limits to this approach: you do not want people fly-tipping or putting unrecyclable rubbish into the recycling bin just to earn credits. But a system that relies more on self-interest than on virtue should both increase recycling and decrease neighbourly ill will.

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# On abortion, trade, Chile and Bolivia, taxonomy, Pakistan, Willie Nelson

Jun 7th 2007
From The Economist print edition

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## Choice matter

SIR – Your overview of abortion policies was timely but failed to consider the significant economic costs associated with the 19m unsafe abortions that are carried out each year around the globe, as reported by the World Health Organisation ("A question of life and death", May 19th). One recent review found that, whereas abortion procedures are very safe when performed legally and properly, the cost to health systems of treating the 5.2m women a year who experience serious medical complications from unsafe abortion procedures could be as high as $850m.

This is a conservative estimate of the total cost of unsafe abortions. It excludes the costs borne by women who seek informal care. Nor does it contain the productivity losses related to morbidity or mortality, including those related to the long-term health consequences of unsafe abortions, such as chronic pelvic infections, subfecundity and infertility. The cost of treating complications arising from unsafe abortions is a burden on health systems throughout the developing world, where almost all unsafe abortions occur. It diverts scarce health resources, and costs much more than the readily available policy alternatives of providing safe abortion and contraceptive services.

Damian Walker
Johns Hopkins University
Michael Vlassoff
Independent consultant
Susheela Singh
Guttmacher Institute
David Newlands
University of Aberdeen
Josephine Borghi
London School of Hygiene and Tropical Medicine

SIR – What a coincidence. The map of abortion laws in your article highlighted those countries that either prohibit abortion altogether or restrict it severely, and is almost identical to regions that are distressed from overpopulation. Nearly all those states are suffering severe social stress, ethnic tensions and civil disorder. They include almost all of the countries that the United Nations Food and Agriculture Organisation says will need food assistance this year.

John Bermingham
Denver

## Trading rights

SIR – Your analysis of the agreement reached between congressional Democrats and the White House over trade policy was not balanced in its assessment of what is actually a big step forward ("A dubious deal", May 19th). America has laid to rest the myth that labour standards are protectionist. As labour standards are supposed to be applied universally—all member states to the International Labour Organisation are committed by their very membership of the body to uphold them—it is difficult to see how they could be protectionist. Unions in Britain have been asking for years for someone to give an instance of when core labour standards have been used as a protectionist measure. No one has yet come up with a single example. The American labour movement has been unable to find one bilateral trade agreement that has foundered because of the inclusion of labour standards.

Moreover, the suggestion that labour standards harm workers in developing countries is the same as suggesting that children in Britain once benefited from being sent up chimneys. Giving workers enforceable rights will speed development, not delay it.

Brendan Barber
General secretary
Trades Union Congress
London

## Gas for land

SIR – The solution to Chile's energy problems rests completely within its control ("Praying for rain", May 19th). Chile has the power both to alleviate its growing need for natural gas, and to pave the way for improved relations with Bolivia, its Andean neighbour. The solution is simple and bold: carve out a narrow corridor of Chilean land aside the Chile-Peru border and cede it permanently to Bolivia in return for a comprehensive natural-gas and trade agreement. Granting landlocked Bolivia access to the sea will mean Chile must forget the events of the 19th century. It would take enormous vision and political muscle, but the pay-off is that Chile could go some way to fulfil its energy requirements.

Dan Laurent
Charlotte, North Carolina

## The more the better

SIR – To discuss species diversity and taxonomy in the context of monetary inflation is a bit like watching a bank burn and observing that at least the remaining currency is gaining value ("Hail Linnaeus" May 19th). Except for one thing: when a species goes extinct, we cannot just print another. Moreover, even if one accepts your analogy, it takes radical inflation for people to stop caring about the conservation of currency. As the value of money declines slightly year to year, people do not typically respond by throwing it away. Your examples of polar bears and raccoons in the Bahamas show that species recognition counts in a similar manner. Simply, the public values species more than other categories of diversity.

I like to dream of a world so full of diversity that the death of another species would be no great loss, or in which the difference between geographic variant and species would be less fateful. But it is just that, a dream. As it is, we are contributing to the greatest series of extinctions in the last 65m years, and likely condemning our closest relatives in the process. Our limited financial history provides no analogue for that.

Charles Lockwood
Department of anthropology
University College London
London

## Double standards

SIR – You described General Pervez Musharraf, Pakistan's president, as "an enlightened sort of dictator" and stated that in a time of war and terror Pakistan "also needs the continuity and stability that he, the army's man and America's friend, has been able to provide" ("Time to cut a deal", May 19th). This sort of reasoning has been used before to support thuggish regimes. General Augusto Pinochet was backed by the West on the grounds that he was saving Chile from communism and fostering economic growth. The results of shoring up that regime in terms of human-rights abuses are well known. The West cannot claim to be in favour of promoting democracy and freedom and then turn a blind eye to allies that subvert these goals. In order to have the moral high ground one must apply principles regardless of how convenient (or inconvenient) the outcome might be. You can simply chose realpolitik and abandon the pretence of morality, but you can hardly have it both ways without being a hypocrite.

Esteban Assadourian
Dallas

## Crazy

SIR – How could you describe Texas's own Willie Nelson as “a local country crooner” (“Venture capitals”, May 26th)? With a bag full of platinum albums and tons of awards stretching over a career of more than 40 years, this co-organiser of Farm Aid and tsunami-relief concerts is no more a local country crooner than the Beatles were a Garston skiffle group.

David Thomas
Raleigh, North Carolina

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Sri Lanka

# A war strange as fiction

Jun 7th 2007 | BATTICALOA, COLOMBO AND JAFFNA
From The Economist print edition

AFP

**An opportunistic president and a dyed-in-the-wool rebel appear to have ended Sri Lanka's best-ever hope for peace**

Get article background

SITTING in a refugee camp outside Batticaloa, in eastern Sri Lanka, Radikhela, a skinny 21-year-old in a pink pinafore, softly describes how her father died. He had his hands cut off, his belly sliced open, and then was beaten in the dust until he expired. His crime was to have been forced into skivvying for Sri Lanka's rebels, a ruthless guerrilla army and suicide cult known as the Tamil Tigers. His killers were from another Tamil militant group, in the pay of Sri Lanka's democratically elected government. Radikhela knows this: her 13-year-old brother was forced to watch the murder, then join the murderers.

More typically, however, the refugees—of whom there are over 100,000 near Batticaloa—describe a less savage sort of warfare. They heard artillery shells exploding near their villages, and they ran. Sometimes the army, which, like the government, is almost entirely composed of Buddhist Sinhalese, a bullying majority, told them the bombardment was coming. At any rate, in nine months of almost constant artillery barrage, mostly by the army, which has depopulated much of Sri Lanka's formerly Tiger-held east, the shelling has killed only around 100 civilians.

As the refugees speak, crowding together on the blistering sand or under wilting plastic sheeting, a periodic ground-muffled boom resounds. From the roads and villages that it controls, every few minutes, the government is shelling the green jungle beyond.

The Conradian imagery is appropriate. There is something strange about Sri Lanka's 24-year ethnic war, a mismatch of high and low intensity, of first world and third, that almost savours of fiction. Horrors like that visited upon Radikhela and her family should not be happening in Sri Lanka. With an income per head of $1,350, almost twice India's, it is a bright star of South Asian development. Its economy grew by an average of 5% during the 1990s, even as the war raged. It grew by around 7% last year, when the war was re-ignited after an unprecedented three-year pause. And this growth also came despite the devastating tsunami of December 2004, in which 35,000 Sri Lankans died.

What is more, Sri Lanka is an unusually delightful war-torn country. Half a million tourists last year are a sign of that. It has well-watered hills, rolling green tea estates and miles of palm-fringed white sands. Sri Lanka's almost wholly literate inhabitants, 75% of them Sinhalese and 12% Sri Lankan Tamils, share an understandable pride in their island. Away from the war zone—despite a history of pogroms and other

discrimination against the minority group—they seem to rub along reasonably well.

In fact, almost half of Colombo, the island's seaside capital of a million people, is Tamil or Tamil-speaking Muslim. More Tamils live peaceably in government-controlled areas than in the north-eastern enclave held by the rebels, whose full name is the Liberation Tigers of Tamil Eelam (LTTE). In the way of ambitious minorities, these Tamils thrive in business, as do Sri Lanka's Muslims.

Meanwhile an ugly war that has claimed over 70,000 lives flickers and, as currently, flares. Last year, according to official figures, more people died violently in Sri Lanka than in Afghanistan. In the past 18 months over 5,000 have been killed, compared with fewer than 200 in the previous three years. Sri Lankan pundits are calling this violence “Eelam War IV”: the fourth round in the struggle for an Eelam, or independent Tamil homeland. A ceasefire, brokered by Norway in 2002, is officially still in place. Yet government and Tigers are both preparing for bigger battles. A peaceful resolution to Sri Lanka's conflict may never have looked less possible.

As the shells rained around Batticaloa on June 2nd, the Tigers launched a fierce night attack along the front line near Omanthai, south of their northern fief. The Tigers say they killed 30 soldiers. The army says it killed 52 Tigers, including many of the child fighters that their leader, a tyrannical hermit called Velupillai Prabhakaran, prefers. Both sides are prone to lie. But on June 5th the Tigers handed over 13 army corpses to the Red Cross.

## Strategies of terror

Yet many, perhaps most, of the war's victims did not fall in pitched battle. Guerrilla and terrorist attacks by the Tigers have cost hundreds of soldier and civilian lives. On May 28th seven soldiers and civilians were killed, and dozens wounded, by a Tiger roadside bomb in Colombo. On May 24th the Tigers claimed to have killed 32 sailors in an attack by their naval wing, the Sea Tigers, on an island off the isolated government-held Jaffna peninsula.

The government of President Maninda Rajapakse also uses terrorism. More than 300 Tamil civilians, including many with family links to the Tigers, have been murdered in Jaffna alone. Armed members of a Tamil political party, the Eelam People's Democratic Party (EPDP), allegedly with close ties to army spies, have been accused of some of these killings.

In Jaffna, M.V. Kanamylnathan, editor of the leading Uthayan newspaper, has decorated his office walls with photographs of the bloodied corpses of his journalists. Last year, on Press Freedom Day as it happened, two of his staff were shot dead at their computers by masked men.

After the Tiger attack near Omanthai, on June 5th, the army chief, Lieut-General Sarath Fonseka, said it was time for a new ceasefire. If he meant it, this would be a big strategic shift by the government. Earlier this year, after a visit to Sri Lanka's holiest Buddhist site, Sri Dalada Maligawa, General Fonseka promised to “annihilate” the Tigers.

Alas, there are reasons to doubt the general's change of heart. His comment this week looked suspiciously well-timed to coincide with a visit from Yasushi Akashi, a so-called “peace envoy” from Japan, Sri Lanka's biggest aid donor. Moreover, when the government has experienced setbacks, it tends to tone down its pugnacity. It did so after a disastrous attack launched from Jaffna last October, in which independent reports suggest that around 200 soldiers were killed and six tanks (nearly half of the army's total) were captured, with not a yard gained.

In an interview last week, General Fonseka seemed uncertain what strategy the government was pursuing. Asked if he would continue attacking the Tigers in the north, he said: “We don't have anything on the drawing-board...there will be a political solution, there will be peace talks.” Yet at the same time, “A political solution can never come while the LTTE is strong.”

In the east the army now holds more ground than it has for a decade. With 25,000 soldiers around Batticaloa, it is trying to drive an estimated 500 Tigers from their last two eastern hideouts, in thick jungle to the north-west and south-west of the town. General Fonseka says this will be done within two weeks. Yet whether the army can retain its ground as the refugees return, with Tigers hiding among them, is uncertain. Either way, it would be wrong to call this campaign a military triumph. It owes more to the defection in 2004 of the Tigers' eastern commander, Vinayagamoorthy Muralitharan, who is known as Colonel Karuna.

Compliant in the way of other militias, Colonel Karuna demobilised 5,000-6,000 Tiger fighters ahead of the army's advance. He has since recruited a fresh militia, including, says the UN, over 200 children. This mob, which itself split last month, is being used by the government in time-honoured fashion: for intelligence, to rile the Tigers and to murder its opponents. The government, of course, denies this.

The north is a different case. As Colonel Karuna's defection suggests, the Tigers' grip on the east was always loose. The eastern population includes many Muslims and Sinhalese, and eastern Tamils consider themselves different from—and speak a different dialect to—the Jaffna Tamils who dominate the Tigers. In the north, however, Mr Prabhakaran runs a de facto state, with its own police force, justice system and tax regime. Penetrating the minefields and fortified trenches that encircle it, as the army has several times tried, would be bloody and perhaps impossible. Indeed, the Tigers' attack near Omanthai was retaliation for the army's latest half-dozen failed attempts. The government denies it; but a joint Norwegian-Icelandic monitoring mission says that around 200 soldiers were involved in each of these attacks, which were also near Omanthai. Up to a third of them were killed.

## Ships and boats and planes

This is another oddity of Sri Lanka's war: the many-times proven ability of 10,000 self-trained guerrillas to defeat the government's 250,000 armed forces in conventional battles. A shimmering example of this is the Tigers' latest weapons system: a fleet of ten light aircraft, imported in pieces during the ceasefire and unveiled in two recent bombing raids on Colombo. One night in April, as the capital's air defences blazed wildly into the night sky, the flying Tigers dropped bombs on a gas installation and an air force base. The Czech-made planes are believed to have a top speed of 260kph. To shoot them down, the government is negotiating to buy five Russian MIG-29s, capable of a speed of 2,400kph. A top official suggested it would do better to buy a couple of second-world-war British Spitfires.

A main reason for the Tigers' success is their support base: a loyal and prosperous Tamil diaspora in America, Canada, Britain and Australia. Around 700,000 refugees from the current conflict are among them. The Tigers tax these exiles. Involvement in criminal schemes, notably credit-card fraud, also provides cash to buy arms. To bring in the guns, bought from South-East Asian arms dealers, the group has a merchant fleet of ten ocean-going vessels. In recent months the government claims to have sunk three of these ships, laden with guns bought in Indonesia. It seems, however, that these were different vessels, chartered for the task.

Whatever General Fonseka is planning, a military end to the war looks impossible. A pity, then, that Mr Rajapakse looks so incapable of peacemaking. He won election in November 2005 in part by promising the Sinhalese masses a less conciliatory approach to the Tigers than that shown by his opponent, Ranil Wickremesinghe, a former prime minister. By agreeing to a ceasefire, which recognised the Tigers' control of the north, Mr Wickremesinghe had riled many Sinhalese nationalists.

Those nationalists—led by a bigoted Buddhist clergy, whose small but shrill political party shares power with Mr Rajapakse's Sri Lanka Freedom Party—considered the ceasefire a precursor to splitting the

country. Since in their view the Sinhalese are the sole owners of Sri Lanka, and all minorities are alien to it, this was unacceptable. Though the monks' orange-robed parliamentary leader, the Venerable Athuraliye Rathana, wants peace for most sentient beings, Tamil rebels are clearly excluded. “Day by day we are weakening them with our military force,” he says. “Talk can come later.”

AFP

**Rajapakse surveys the troops**

The second secret to Mr Rajapakse's election was that, at the Tigers' command, north-eastern Tamils did not vote. Had they done so, most would have plumped for Mr Wickremesinghe, whose peacemaking delivered freedoms to travel and trade that they had not enjoyed in decades. This had represented a challenge to Mr Prabhakaran. Autocratic to his fingertips, incapable of sharing power even with trusted deputies such as Colonel Karuna, he wanted out of the peace process.

Mr Prabhakaran declared the election a Sinhalese affair, not for independence-seeking Tamils. A Sinhalese-chauvinist government suits Mr Prabhakaran, helping bolster Tamil support for the Tigers. Recent reports have even suggested that he struck a secret deal with the opportunistic Mr Rajapakse. In return for, in effect, delivering Mr Rajapakse to power, Mr Prabhakaran was promised cash, Colonel Karuna in chains and recognition of the Tigers' control of the east. Yet no sooner was Mr Rajapakse elected than both sides were shelling and murdering each other. Within six months, the war was back on.

Or rather, it had reverted to a different phase of what many Sri Lankans see as an endless cycle. On the government side, Mr Rajapakse's pledge to get tough on the Tigers has been heard from previous Sinhalese populists. Among southern Sinhalese this message is effective. In their pretty fishing villages and state-subsidised paddy-fields, most are too removed from the war to feel much urgency to end it. According to a poll in February by the Centre for Policy Alternatives, a Sri Lankan think-tank, 59% of Sinhalese wanted a “military solution” to the conflict. Mr Wickremesinghe's predecessor, President Chandrika Kumaratunga, had also tried to please this majority. She waged a policy of “war for peace” against the Tigers—as unsuccessful as it was illogical.

But Mr Rajapakse has plunged further into the past. Though the Tigers demand independence for the north-east, most Tamils would settle for a decent measure of autonomy. At the last round of peace talks, in Oslo in 2004, even the Tigers seemed to accept this; they issued a demand for “internal self-determination”. Mr Rajapakse, however, has proposed as his solution a modest devolution at the village level. This idea, modelled on India's system of Panchayats, was aired, and discredited, in the early 1980s.

## What Tamils want

It is hard to exaggerate how inadequate, and depressing, most Tamils considered this. Yet Mr Rajapakse perhaps need not care. He remains popular, and not only for waging war. Mr Wickremesinghe made himself unpopular by introducing liberal economic reforms. By cutting a ruinous subsidy on paddy fertiliser, for example, he lost the votes of many peasant farmers. Among other populist measures, Mr Rajapakse has restored the subsidy. He has also tightened his grip in even less admirable ways.

Wary of political allies, Mr Rajapakse has appointed his three brothers to run important ministries. He has

nabbed the ministries of finance, defence and public works for himself. Together, the brothers Rajapakse control over 70% of Sri Lanka's budget. The defence budget, which was increased by 40% this year, is being overseen by the unelected Gotabhaya Rajapakse. A former fire-eating army officer who spent 17 years in America, at one time managing a 7-Eleven store, Mr Rajapakse has proved as bellicose as Mr Prabhakaran and General Fonseka combined.

The government's profligacy and misrule is taking a toll. To sustain public expenditure, the governor of the central bank, another crony of Mr Rajapakse, has printed lots of new money. This has helped drive inflation to around 15%. Collapsing tourist revenues after the Tigers' blitz on Colombo augur more economic damage. Yet Mr Rajapakse may gamble that, with annual remittances of $2.5 billion from Sri Lankans working in the Middle East, the economy can ride this out. And he would probably be right.

All of which is good news for the appalling Mr Prabhakaran. Justified by the war, he has re-mobilised the north-east, demanding up to two child fighters from each family. War has also increased his opportunities to throttle dissent. Given little to hope for by the government, even Tamil moderates, who have no reason to love Mr Prabhakaran, are more likely to support, or at least suffer, him. “The Sinhalese authorities are not willing to talk to moderates,” says Suresh Premachandran, a parliamentary member of the Tamil National Alliance, who has several times escaped assassination attempts by the Tigers. “They only understand the LTTE.”

What could break the cycle? It is rather hard to imagine. As in other ethnic conflicts, from Palestine to Northern Ireland, the solution to Sri Lanka's conflict seems obvious. Tamils require an end to the discrimination that has virtually barred them from holding jobs in the army and police. After so long a struggle, they also require a fair apportioning of power to a united north-eastern province. Nothing less will bind them to Sri Lanka and diminish Mr Prabhakaran's brutish hold over them.

For their part, the Sinhalese need to understand that this is so. Mr Wickremesinghe, an uncharismatic sort, had the right vision but failed to sell it. If Mr Rajapakse were wiser than he is, he might have done better. But the current prospects for rallying the Sinhalese behind an accommodation with the Tigers appear little better than hopeless.

Supposing Mr Rajapakse even wanted this, he would need to shed his nationalist allies and seek an alliance with Mr Wickremesinghe's United National Party (UNP)—though the UNP, a score of whose MPs Mr Rajapakse has co-opted into his coalition, would probably have none of this. If Sri Lanka is to have peace, it may not be under Mr Rajapakse. And it may not be soon, with no general election due in Sri Lanka until 2010.

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Crime

# New model police

Jun 7th 2007 | LOS ANGELES AND NEW YORK
From The Economist print edition

Getty Images

**Why crime continues to fall in America's biggest cities even as it rises elsewhere**

Get article background

WILLIAM BRATTON, the chief of the Los Angeles Police Department (LAPD), likes to say that “cops count”. They certainly seem to count when Mr Bratton is in charge of them. New York's crime rate withered when he ran its police force in the mid-1990s, and Los Angeles has become more law-abiding ever since he arrived in 2002. Burglaries are down by a fifth, murders by a third and serious assaults by more than half. The setting for innumerable hard-boiled detective novels and violent television dramas is now safer than Salt Lake City in Utah.

Yet Los Angeles's good fortune is not replicated everywhere. Compared to ten years ago, when crime was in remission across America, the current diagnosis is complex and worrying. Figures released this week by the FBI show that, while property crimes continue to fall, the number of violent crimes has begun to drift upwards. In some places it has soared. Oakland, in northern California, had 145 murders last year—more than half again as many as in 2005. No fewer than 406 people died in Philadelphia, putting the murder rate back where it had been in the bad old days of the early 1990s.

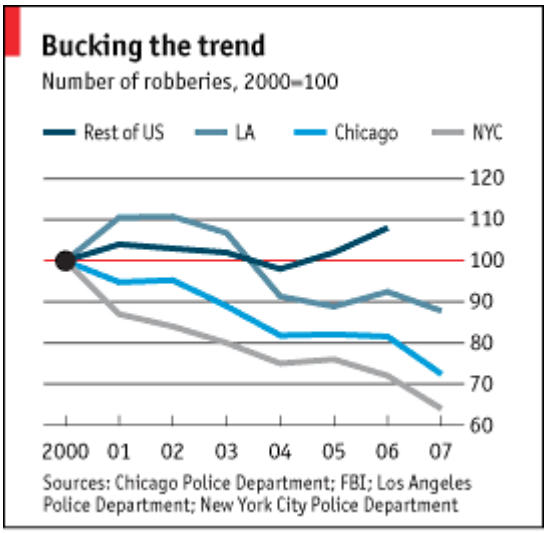
The most consistent and striking trend of the past few years is a benign one. America's three biggest cities are becoming safer. Robberies in Chicago, Los Angeles and New York have tumbled in the past few years, defying the national trend (see chart). Indeed, the big cities are now holding down increases in overall crime rates. Between 2000 and 2006, for example, the number of murders in America went up by 7%. Were it not for Chicago, Los Angeles and New York, all of which notched many fewer, the increase would have been 11%.

This is especially surprising given the big cities' recent woes. Thanks to a cut in starting salaries and poaching by suburban forces, New York's police department has lost more than 4,000 officers since 2000. Chicago and Los Angeles also have fewer cops than they did in the late 1990s—and the latter has more people. The LAPD labours under a court decree, imposed in 2001 following revelations of corruption and brutality, which forces it to spend precious time and money scrutinising itself.

The three police forces, though, look increasingly alike when it comes to methods of tackling crime. The new model was pioneered in New York. In the mid-1990s it began to map crimes, allocate officers accordingly (a strategy known as “putting cops on the dots”) and hold local commanders accountable for crime on their turf. Since 2002 it has flooded high-crime areas with newly qualified officers. The cops' methods are sometimes crude—police stops in New York have increased five-fold in the past five years—but highly effective. Crime tends to go down by about a third in the flooded areas, which has a

disproportionate impact on the overall tally.

In the past few years Chicago and Los Angeles have adopted similar methods: although, having fewer officers, they are less extravagant with them. The Los Angeles police targeted just five hot spots last year. But both cities have put local commanders in charge of cutting crime on their patches. And, like New York, they are moving beyond putting cops on the dots. They now try to anticipate where crimes will occur based on gang intelligence.




Wesley Skogan, a criminologist at Northwestern University, reckons such methods are the most likely cause of the continued drop in big-city crime. He has diligently tested most of the explanations proffered for Chicago's falling crime rate and has been able to rubbish most of them. Locking lots of people up, for example, may well have helped cut crime a decade ago. But it can't account for the trend of the past few years: the number of Chicagoans behind bars has declined since 1999. The police simply seem to be doing a better job of deterring lawlessness.

The big cities' methods may sound obvious, yet they are surprisingly rare. Many police forces are not divided into neighbourhood units. Oakland's struggling force, for example, is organised into three daily shifts, or “watches”, which makes it hard to hold anybody accountable for steadily rising crime in a district. Even when smaller police forces track emerging hot spots, they often fail to move quickly enough to cool them down.

There is, however, a limit to what even the best police forces can do. Outside New York, in particular, the thin blue line can be very thin indeed. Los Angeles, a city of 3.8m people, tends to have about 500 officers on general patrol at any time. However shrewdly the cops are deployed, they might not have cut crime so dramatically if social trends had not also been moving in the right direction.

The most obvious change is that, thanks in part to high property prices, all three cities are shedding young people. Together they lost more than 200,000 15-to 24-year-olds between 2000 and 2005. That bodes ill for their creativity and future competitiveness, but it is good news for the police. Young people are not just more likely to commit crimes. Thanks to their habit of walking around at night and their taste for portable electronic gizmos, they are also more likely to become its targets.

Another change is that poor Americans have been displaced by poor immigrants—who, as studies have repeatedly shown, are much better behaved than natives of similar means. This trend is symbolised by the disappearance of blacks. Roughly half of America's murder victims and about the same proportion of suspected murderers are black. In five years America's three biggest cities lost almost a tenth of their black residents, while elsewhere in America their numbers held steady.

None of which detracts from the achievement of America's biggest police forces. After all, they managed to cut crime when several trends, from the growing availability of crack cocaine to the continued breakdown of poor families, were against them. It is nice to have some help, but cops do count.

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Presidential debates

# Faith, hope and security

Jun 7th 2007 | WASHINGTON, DC
From The Economist print edition

**Both parties' candidates are busy wooing their bases**

REPUBLICANS may think theirs is the godly party, but they do not expect God to intervene at their presidential debates. On June 5th Rudy Giuliani, the Republican front-runner, was on the spot. Mr Giuliani says he hates abortion but thinks it should be legal. A Catholic bishop had likened him to Pontius Pilate saying: “You know, I'm personally opposed to crucifixion but I don't want to impose my belief on others.” Mr Giuliani, a Catholic, was asked to respond.

AFP

**Eight suits a-talking**

As he started to speak, lightning knocked out the sound system, briefly silencing him. Mr Giuliani laughed, looked up and said: “For someone who went to parochial schools all his life, this is a very frightening thing.” He then explained why, alone among Republicans with a shot at the presidency, he is pro-choice. He noted that America is a pluralistic society, and that people should be able to disagree about abortion without being jailed. On this and other social issues, he is closer to the American centre than his rivals, which is one reason why pragmatic Republicans are smitten by him while the more ideological ones feel like smiting him—though he agrees with them on many other issues, including their hostility to George Bush's latest immigration bill.

The Democrats, meanwhile, to rebut the common conservative notion that theirs is the godless party, held a debate about religion on June 4th. John Edwards said that if elected president his faith would impel him to eliminate poverty in 30 years. Barack Obama waffled about the need for left and right to find common ground, and said he saw a Biblical injunction to give ex-convicts a second chance.

But Hillary Clinton stole the show. “I come from a tradition that is perhaps a little too suspicious of people who wear their faith on their sleeves,” she said. Sure, it was scripted, but it deftly packed self-deprecation, a reminder that Mrs Clinton is a devout Methodist and a stab at political Pharisees into one sentence. She also said that her faith had helped her cope with her husband's infidelity, and that she hoped to join forces with pro-lifers to reduce the number of abortions in America.

The Democrats also held a separate debate on June 3rd, involving all eight declared candidates. It was prickly. Mr Edwards chided Mr Obama and Mrs Clinton for voting against a war-funding bill quietly and only at the last moment, when it was clear it would pass. He said they should have shown more leadership. Mr Obama retorted that he had been against the Iraq war from the start, unlike Mr Edwards, “So you are about four and a half years late on leadership on this issue.”

The debates highlighted differences between the two parties. The Republicans talked a lot about national security, vowing to do whatever it takes to win in Iraq and to prevent Iran from acquiring a nuclear weapon, even if that means a pre-emptive nuclear strike on Iranian nuclear sites. The Democrats vowed to get out of Iraq as quickly as possible and stressed diplomacy as the answer to nearly all threats. Mrs Clinton refused to say how far she would go to stop Iran going nuclear. Mr Edwards, by contrast, said that “no responsible president would ever take any option off the table.”

The Democrats were more comfortable touting their health-care plans. Mr Edwards sniped at Mrs Clinton and Mr Obama for pretending that their plans would not require big tax increases, which he admits his will. Among the Republicans, the keenest to talk about health was Mitt Romney, who as governor of Massachusetts made health insurance compulsory. “I'm the guy who actually tackled this issue,” he said. A fair point.

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Guantánamo Bay

# Another fine mess

Jun 7th 2007
From The Economist print edition

**Yet another blow to the system for trying terrorist suspects**

THIS week's surprise dismissal of war-crimes charges against two Guantánamo detainees may be based on a mere “technicality”, as red-faced administration officials hastened to claim. And some way round it will, doubtless, soon be found. It nevertheless drives another nail into the coffin of the whole sorry system set up by George Bush to deal with suspected terrorists after the September 11th 2001 attacks. (See also article).

In separate decisions on June 4th, two military judges ruled that the special military commissions set up under a 2006 act had the power to try only “unlawful enemy combatants”. The two defendants, Omar Khadr, a Canadian accused of killing an American soldier, and Salim Hamdan, Osama bin Laden's Yemeni-born former driver, had—like most other Guantánamo detainees—been categorised simply as “enemy combatants”.

AP

**Will they ever try Hamdan?**

Under the Geneva Conventions, a combatant is deemed lawful and therefore entitled to prisoner-of-war status and protections if he is a member of either a regular government force or an organised militia, wearing a distinctive sign, carrying arms openly, and abiding by the rules of war. As such, he may refuse to give his captors any information save his name, rank and serial number, and, if charged, would be entitled to a trial by a normal court-martial.

This was obviously not what Mr Bush wanted. He argues that al-Qaeda members do not qualify as lawful enemy combatants and are therefore not entitled to any rights or protections. But in June last year, the Supreme Court ruled that anyone held in American military custody anywhere in the world is entitled to at least the minimum protections under Common Article 3 of the Geneva Conventions, guaranteeing the right to be humanely treated and, if charged, to be tried by a “regularly constituted court, affording all the judicial guarantees”. The existing commissions did not meet that standard, the justices said.

In the rush to pass legislation to make the commissions lawful, officials evidently overlooked the fact that other tribunals, whose job it is to determine the status of detainees, can place them in one of only two categories. Either they were deemed “enemy combatants”, in which case they could be held without charge until the end of Mr Bush's global “war on terror”; or they were not, in which case they could be released. Neither option now appears to allow for any of the suspects to be tried.

From the outset, the military commissions—the first to be set up since the second world war—have been dogged by controversy and legal challenge, not least from the Pentagon's own lawyers. In five and a half years, only one detainee—David Hicks, an Australian—has been convicted, after a plea-bargain in March. Messrs Khadr and Hamdan were the first due to stand actual trial. However, this week's decision will not mean they will be set free. The administration has already said it will appeal. If the appeal fails, the two—and any others charged with war crimes or terrorist offences—will doubtless simply be redesignated as “unlawful” combatants in new hearings, before being returned to the military commissions that have just dismissed the charges against them. But the embarrassment of the latest ruling will make even more people wonder whether it would not be better simply to abolish the whole mess.

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Politics and prison

# Loot, lies and leaks

Jun 7th 2007 | WASHINGTON, DC
From The Economist print edition

**An indictment for a Democrat, a harsh sentence for a conservative**

THE law lashed out at two Washingtonians this week. One, William Jefferson, is a Democratic congressman from New Orleans who would be entirely obscure were it not for the colourful crimes he is alleged to have committed. The other, Lewis “Scooter” Libby, was until recently chief of staff to Dick Cheney. Mr Jefferson was indicted for bribery on June 4th. The next day, Mr Libby was sentenced to 30 months in jail and fined $250,000 for perjury and obstruction of justice in a case about “outing” a CIA agent.

The two cases could not be more different. Mr Jefferson is accused of straightforward corruption to enrich himself and his family. Prosecutors say he accepted nearly $500,000 in bribes in return for helping with business deals in Africa. He is also alleged to have offered a bribe to a top Nigerian politician. He denies the charges, but he was secretly recorded apparently discussing bribes, and the FBI found $90,000 in cash hidden in his freezer in 2005.

The case embarrasses the Democrats, who recaptured Congress last year vowing to end the Republican “culture of corruption”. Republicans called for Mr Jefferson to be expelled from Congress. Even pro-Democrat bloggers recalled that, when Hurricane Katrina hit New Orleans in 2005, Mr Jefferson commandeered a National Guard truck to save his own possessions, and urged that the party kick him out.

Mr Libby's case is more important, and much harder to follow. In brief, it revolves around the leaking of the name of a CIA agent whose husband, a former diplomat, had embarrassed the Bush administration by disputing its assertion that Saddam Hussein had been seeking uranium in Africa.

In the end, after a long and bruising investigation, no one was prosecuted for outing the agent. But because Mr Libby's accounts of his conversations with reporters were contradicted by nearly all of them, he was convicted of perjury.

Democrats claimed the case showed that the Bush administration manipulated the pre-war intelligence. At a Republican presidential debate, several candidates said they would consider pardoning Mr Libby, noting that he was convicted in a case where no underlying crime was proven. A bit like Bill Clinton, as they didn't add.

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The hurricane season

# Hunkering down

Jun 7th 2007 | TAMPA
From The Economist print edition

**Florida prepares for the worst yet again**

THE first day of June marks the annual start of America's hurricane season, which lasts till November 30th. In Florida, which bears the brunt of the storms, newspapers celebrated the occasion by publishing special supplements telling readers everything they needed or wanted to know about hurricanes; stores put on sale such essential items as generators, flashlights and butane-powered stoves, and county and state officials told people to be prepared to “hunker down”.

For the third consecutive year, Florida is enjoying a sales-tax holiday on hurricane supplies. A long list of goods including the above items as well as radios, batteries (rechargeables and mobile-phone batteries; those for automobiles or boats don't qualify), and re-useable ice packs are free of tax from June 1st-12th. Purchasers will save an estimated $25m.

Citizens, tourists and visitors were stocking up early this year, as Tropical Storm Barry hit much of Florida on the first two days of June, dumping seven inches (18cm) of rain on West Palm Beach. It was tiny compared with recent storms such as Hurricane Wilma in 2005 or the four hurricanes that devastated the state in 2004. But the season is only days old.

AP

Also feeling the brunt of the storm was the National Oceanic and Atmospheric Administration. The agency plans to spend $4m celebrating its own 200th anniversary celebration while trimming $700,000 from the budget for hurricane research of its subsidiary agency, the National Hurricane Centre.

Better prepared for hunkering down is the National Aeronautics and Space Administration's Kennedy Space Centre, on the east coast. Large squads are standing ready to cover up computers and other vital equipment and to lift anything that can be lifted off the floor in case of flooding. Covering rockets, though, is not so easy.

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Lawnmowers

# It all adds up

Jun 7th 2007 | ST LOUIS
From The Economist print edition

**Green grows the garden, brown goes the world**

AS SPRING turns to summer, across America millions of small engines are coming to life, cranking out power and puffing out smoke as they mow America's lawns, whack its weeds and trim its borders. Each engine by itself has little effect on the atmosphere, and most are operated only for short spells. But together they contribute a lot of air pollution, a matter on which the federal government and the states are starting to focus.

Small engines—those under 25-horsepower—are much cleaner than they were 20 years ago. But unlike cars and lorries, they are largely uncontrolled; and their carbon-dioxide emissions, combined with escaping fuel vapours and leaking oil, make them remarkably dirty machines for their size. For example, regulators in California estimate that using a chain-saw for two hours produces as much pollution as ten cars each driving 250 miles (400km)—though the outdoor-power-equipment lobby, of course, vigorously disagrees.

Under the federal Clean Air Act, California is the only state that can set its own regulations, although other states may adopt them. California has been phasing in regulations for small engines since 1990. For years Senator Kit Bond of Missouri, determined to protect jobs at two factories in his state, blocked an effort to apply those standards nationally. But recently a compromise, allowing the federal Environmental Protection Agency to proceed with proposed new regulations, was reached. The small-engine lobby concedes that stricter regulations were inevitable, and that a national standard would make sense.

Other tactics are being tried as well. The South Coast Air Quality Management District, which covers Los Angeles and Orange County, is offering residents a $399 electric-powered lawnmower for $100 if they trade in an old petrol-burning lawnmower.

Alternatively, America could always give up lawnmowing altogether. Las Vegas residents are encouraged to abandon the unnatural practice of growing grass in a desert and let native plants re-establish themselves. And some have done what so many sweat-drenched people pushing a lawnmower in a Midwestern heatwave long to do: they have paved over their lawns and painted the concrete green.

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Reproductive ethics

# The extra embryos

Jun 7th 2007 | AUSTIN
From The Economist print edition

**Be fruitful and multiply, even in the lab**

AFTER marrying in 1997, Randy and Augusta Roman struggled to conceive. They eventually decided that in-vitro fertilisation (IVF) was their best hope. Ms Roman had 13 eggs removed, and six were fertilised with her husband's sperm. Everything was going according to plan until the night before the embryos were to be implanted. Randy balked. According to a brief Augusta later filed, he was concerned that she was “hostile to God”. He would, he said, “monitor her soul and only go forward when her soul was right with God”. They froze the embryos. A year later, Mr Roman filed for divorce.

The couple divided their property. She got the house, and he got the futon. But they could not agree on what to do with the three embryos that survived freezing. Ms Roman wanted to use them. Mr Roman wanted them destroyed, as stipulated in the agreement they had signed at the beginning of the process. A district court gave the embryos to Ms Roman, but an appellate court reversed that decision. The Supreme Court of Texas may have to take up the case next.

Perhaps Ms Roman's soul is not right with God. But some would say the same of Mr Roman. In-vitro fertilisation presents a moral difficulty for Catholics and evangelicals who believe that life begins at conception. The process typically yields a number of blastocysts—tiny embryos, just 60-100 cells large. As a safeguard against octuplets, only a few are implanted at a time. The spare embryos face an uncertain future. Several hundred thousand are currently languishing in cold storage in the United States. Untold numbers have been disposed of as medical waste.

Theoretically, of course, people might only create as many embryos as they plan to implant. The United Methodist Church is one denomination that suggests this path. But because IVF is expensive and uncertain, most people want to create as many embryos as possible in one go. Extras are inevitable.

Groups have sprung up to save them. Nightlight Christian Adoptions specialises in placing these “pre-born children”. They call the embryos “snowflakes”, because each is fragile and unique. But the Christian right is not vocally opposed to reproductive technology. By contrast they fiercely oppose stem-cell research on the ground that it destroys embryos—even when the embryos used for research are IVF extras. IVF yields babies, which is generally something the “pro-family” right approved of.

The issue is, of course, far from settled. In America, as elsewhere, people are confused about the status of embryos and whether they have any rights. One state that has addressed the issue is Louisiana. It maintains that an unimplanted embryo is a “juridical person” with the same rights as anyone else. In 2005, in the wake of Hurricane Katrina, state police with flat-bottomed boats rescued 1,400 frozen embryos from a flooded hospital. One of the embryos thus rescued was born earlier this year. His name is Noah.

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Education

# Pro-choice

Jun 7th 2007 | NEW YORK
From The Economist print edition

**New Jersey has become the new front in the fight for school vouchers**

IN THE gruelling battle over how to improve America's schools, no reform faces greater resistance than school vouchers—the idea that parents should have a portable chunk of money to spend on their child's education at any school they want.

Teachers' unions and their allies are adept at quashing voucher bills whenever they come before state legislatures. They argue that public schools will be undermined if parents can use taxpayers' money to send their children elsewhere. If by miracle a voucher bill does get passed into law, it is almost always challenged. For instance, Utah has just become the first state to approve a universal voucher programme, but opponents have organised a statewide referendum to scrap it.

Now some supporters of school vouchers, frustrated with state legislators, are testing a new tactic: going to court. Last July a group of parents in New Jersey filed a lawsuit against the state and 25 poorly performing districts. In *Crawford v Davy* they are arguing that since public schools deny students their constitutional right to a proper education, the court should refund their money so they can spend it at any school they choose. This is not the first attempt to use courts to permit the use of vouchers: similar efforts failed in Illinois and California, for example. But in New Jersey, such a suit might actually succeed. New Jersey's courts have no qualms about meddling in education—they have been doing so for decades.

In 1973 the New Jersey Supreme Court said the government was failing to provide poor children with the "thorough and efficient" education guaranteed by the state constitution, and that the school-funding formula must change. Since a 1985 case, *Abbott v Burke*, the court has issued rulings laying out its remedy in detail: the state must send more money to poor school-districts, so that their budgets match those of the state's highest-spending areas.

Courts across America have seen plaintiffs ask for more school aid. But no judges have responded as zealously as those in New Jersey. Since 1985 the state's Supreme Court has been deep in policymaking, demanding money for everything from school construction to summer courses. As a result, spending has rocketed in the 31 so-called "Abbott" districts. The teachers' union says the cash is helping schools to improve; some parents say they are not improving fast enough. In Newark, which spends the most, 61% of the 11th-graders failed to achieve even basic proficiency in maths in 2005.

Ironically, it is this intervention that has attracted free-market pro-voucher reformers. To Clint Bolick, of the Phoenix-based Alliance for School Choice, New Jersey looked like fertile ground for a further lawsuit. The alliance teamed up with three local organisations, Excellent Education for Everyone (E3), the Black Ministers' Council and the Latino Leadership Alliance, to support *Crawford*.

The suit, filed by the parents of 12 children in failing schools, argues that the state is indeed denying children a proper education, but that the *Abbott* solution is wrong. Rather than pump more money into a failing system and hope it improves, the suit reasons, the court should let taxpayers take their money elsewhere, be it to private schools or public schools in another town.

The defendants argue that *Crawford* should be thrown out because courts should not write school policy. This argument hardly rings true in New Jersey, though, given the state's history of judicial activism. The case is likely to end up in the state's Supreme Court.

In the meantime, Dan Gaby, the director of E3, hopes *Crawford* will encourage plans to boost competition among schools. The state's legislature is considering creating a tax credit for companies that donate to scholarship programmes. In a poll taken in New Jersey last July, 74% of respondents approved of the tax credit. Vouchers were more controversial, favoured by a slim majority. Support was higher, however, among minorities. "Everyone in America has school choice," Mr Gaby explains, "unless you're poor."

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Lexington

# Bada Bing!

Jun 7th 2007
From The Economist print edition

Kevin Kallaugher

**Saying goodbye to Tony Soprano**

THE day of mourning is at hand. On June 10th, after eight years, 86 episodes and innumerable garrottings, gougings, beatings, decapitations and chain-assisted drownings, “The Sopranos” comes to an end, and with it arguably the best hour on American television.

Tabloid journalists are speculating about the final episode. Will Tony Soprano survive or splatter? Commentators are competing to heap praise on the series and its creator, David Chase. David Remnick uses his oracular position as editor of the *New Yorker* to pronounce it “the richest achievement in the history of television”. And others are grappling with the most pressing cultural questions of the day: what made the series so good? And what does it say about America?

There are lots of little things that made it so good. The sharp-eyed observation of dozens of different worlds, not just the mob-land of north-eastern New Jersey but also the smug little worlds of Columbia University, bohemian New York and psychiatrists' dinner parties. The extraordinary characters like “Paulie Walnuts” Gualtieri, with his weird wings of hair, who hover in the no-man's-land between cartoons and nightmares. The willingness to break with television conventions, not least the convention that everything has to be neatly tied up.

The most important reason, however, was the central conceit: that gangsters are human beings just like the rest of us. Mr Soprano is a mob boss who makes his living skimming city contracts, hijacking lorries full of booze and cigarettes, running illicit gambling. His office is in the backroom of a strip club, the Bada Bing; he enforces his business deals with beatings and murder. But Mr Soprano is also a regular McMansion-dwelling guy. His money never quite goes far enough. He worries about his children's upbringing. Above all, he has what Americans call “issues”. His mother was a monster, the black dog follows him wherever he goes and he sees a shrink.

It is hardly original for artists to try to blur the boundaries between the normal and the deviant. Hollywood has been in that game since at least the 1960s. But “The Sopranos” does it superlatively well. Mr Soprano's depression is rooted in family dynamics. True of many. But one of his earliest memories of those family dynamics is his father shooting a bullet through his mother's beehive hairdo.

The blurring of normal and abnormal is also the blurring of good and evil. Mr Chase makes no bones about the fact that his hero is evil. He carefully eschews the glamorising of gangster life characteristic of Quentin Tarantino and his ilk. Mr Soprano murders anybody who is a threat to him, including his nephew

and his best friend, Sal “Big Pussy” Bonpensiero. He breaks bones with a stomach-turning crack. He commits adultery in a thoroughly animalistic manner, at one point with a one-legged Russian woman. Yet Mr Chase also portrays him as a devoted family man. “I'm a good guy, basically,” he tells his psychiatrist, not long after he has murdered a close relation. The result is complicated. Viewers hope for Mr Soprano's redemption. They also—let's be honest—take guilty pleasure in his freedom from middle-class hang-ups. In Tony Soprano Mr Chase reveals the banality of evil and its glamour.

Which leads on to the second question. “The Sopranos” says a lot of positive things about America—that it can pour out remarkably gripping and innovative drama and can elevate pop culture to the level of art. But it also says something worrying: that American culture is always likely to set people's teeth on edge, particularly in the world's more conservative corners; not just because it is so full of animal spirits, but also because it revels in overturning moral certitudes.

## Love is hate

Foreign-policy commentators like to draw a distinction between soft power and hard power. The argument is that America has more to gain by spreading its ideas and values than through exercising its military muscles. They also often seek to make a clear distinction between pro- and anti-Americanism. But a little time with Tony, Big Pussy and Paulie Walnuts shows that things are a little bit more complicated.

Many people mistrust America not so much because they have not been wooed by its soft power but because they believe that they and their children are over-entangled in it. And many people are up in arms not simply because they are anti-American but because they are bipolar about America—simultaneously attracted and repulsed by what they see going on in the Bada Bing.

This is not to endorse Dinesh D'Souza, a writer who calls for an alliance between American conservatives and Islamists against Western liberalism. The cultural excesses of liberalism are a small price to pay for its benefits. And, besides, Sayyid Qutb, the intellectual godfather of al-Qaeda, fashioned his hatred of America while watching church dances in rural Colorado. Still, it is one thing for Western sophisticates, with a life-time's immersion in pop culture, to watch Mr Soprano at work; quite another for people in more traditional places.

American culture has always had a weakness for sex and violence. But since the 1960s it has gleefully eliminated conventional distinctions between good and bad, and since the 1990s it has been supercharged by the dramatic increase in the power of mass communications that are bringing America's cultural offerings to every corner of the world. The success of “The Sopranos”, both commercially and critically, can only serve to reinforce this trend. The tensions created by the growing global reach of shows like “The Sopranos” may prove far more difficult to manage in the long run than the tensions created by the passing neoconservative moment.

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Bolivia

# Friends, not clones

Jun 7th 2007 | LA PAZ
From The Economist print edition

Reuters

**Much though Evo Morales (left) might want to be another Hugo Chávez, he will not find it easy**

Get article background

WHEN FIFA, the body that governs world football, decreed last month that international matches could not be played at altitudes above 2,500 metres (8,200 feet), Evo Morales must have been delighted. For once, Bolivia's president could apply his genius for political gesture to an issue that does not divide his countrymen. Mr Morales, a keen footballer, turned out for a few impromptu matches in La Paz's national stadium (altitude: 3,600 metres), cheered on by nearly all of Bolivia's 9m people. They see the FIFA ruling, which cites health worries, as an attack on their competitive advantage.

Many of Mr Morales's gestures in the 17 months since he took office as Bolivia's first-ever elected president of Andean Indian descent have been more divisive. His most popular policy, the nationalisation of oil and gas, has irritated foreign governments and investors. The “democratic revolution” he promises—a transfer of wealth and power from Bolivia's white and *mestizo* (mixed race) elite to the mainly Andean Indian poor—alarms the prosperous eastern provinces. He calls the media the “main adversary” of his government and wants to hold them accountable to the people. On June 5th the judiciary staged a one-day strike to counter a presidential assault on its independence.

In short, his opponents fear that Mr Morales is leading Bolivia down the path that his close friend, Hugo Chávez, has taken Venezuela: one of “21st-century socialism” and a presidential monopoly of power. “Chávez owns the Bolivian government,” says Jorge Quiroga, the leader of the opposition Podemos party.

Mr Chávez is clearly an ally and an inspiration for Mr Morales, but does that make him a model? His advisers insist not. “It's a mistake to think that Morales is a copy of Chávez,” says Pablo Solón, the government's foreign-trade envoy.

There are three reasons to think he may be right, none of which assume that Mr Morales would not enjoy wielding absolute power. First, while Mr Chávez is a former army officer who came to national prominence by leading a failed military coup, Mr Morales is the leader of a coca-growers' union and of a coalition of radical “social movements” whose protests brought down two previous governments. Mr Morales is now their unchallenged leader, but they will resist the idea that all change should come from the top down.

Second, Mr Morales confronts powerful regions headed by elected governors opposed to his plan to “refound” Bolivia. Finally, although natural gas has been a bonanza, its revenues are far more modest than Venezuela's oil billions. Bolivia cannot generate enough growth and jobs without private and foreign investment. In short, Venezuela is a one-man show but governing Bolivia demands alliances.

Mr Morales himself seems unsure of where he is heading. His ready acceptance of Venezuelan patronage and his raids on independent institutions feed suspicions. In April 2006 Mr Morales signed up to Mr Chávez's “Bolivarian Alternative for the Americas”, a managed-trade agreement and anti-American alliance also involving Cuba. Venezuelan aid has poured in. It pays for scholarships, a campaign to distribute identity cards and the cheques that Mr Morales hands out to mayors for local development in the Altiplano, Bolivia's vast western plateau. More aid is promised for a network of community radio stations and the upgrading of the main state television station.

Mr Morales also has Mr Chávez's penchant for subverting rival centres of power, but perhaps less talent for it. Take the latest clash with the judiciary. This began when the Constitutional Tribunal ruled that four Supreme-Court justices temporarily appointed by the president should yield their seats. Mr Morales called for the tribunal's impeachment. The judiciary staged its first-ever strike to resist the government's attempt to “throw out the Bolivian judicial system and implant a totalitarian regime,” said a statement by the Supreme Court.

In January Mr Morales's supporters tried to unseat the governor of Cochabamba, the country's third most-populous province, for proposing a referendum on autonomy. Three people died in violent clashes. The incident pushed the governor closer to the four opposition-led eastern regions that had already backed autonomy in a 2005 referendum.

These skirmishes are part of an improvised revolution with uncertain aims. The vice-president, Álvaro García Linera, recently called for a “broadening of elites” and “room for both capitalist and post-capitalist development”. What opponents see as an assault on democracy, the government sees as purging vestiges of “anti-democratic” tendencies.

Greater clarity should soon come from a constituent assembly that is writing a new constitution (another device used by Mr Chávez to consolidate his power). Mr Morales's Movement to Socialism (MAS) proposes to redefine Bolivia as a “unitary, pluri-national, communitarian” state that gives pride of place to three dozen indigenous “nations”. These groups would control territory and natural resources and would be represented as communities in a single-chamber legislature alongside individual citizens. Private enterprise would be protected when it “contributes to economic and socio-cultural development”. A fourth “social power” would oversee the traditional three.

This smacks of corporatism, not democracy. The opposition objects to dividing Bolivia ethnically, and to the abolition of the Senate, where small provinces have political weight. The MAS has a majority in the assembly but not the two-thirds required to approve a new constitutional text. Samuel Doria Medina, the leader of a centrist opposition party, thinks compromise is possible. Indigenous “nations”, for example, could become wispier “nationalities”, he says.

In some moods the government seems open to compromise. “We don't want a constitution approved by 60 or 70% of the country but rejected by the rest,” said Mr García Linera. The final text, due by August 6th, will be subject to a referendum and then to interpretation by the courts, which Mr Morales does not yet control. What he may really be angling for is an end to the current rule that bars presidents from consecutive terms, so that he could run for re-election under the new constitution next year and again in 2013. In return, he would accept the opposition's demands for regional autonomy, says Carlos Toranzo, a political analyst.

Such deal-making would not be out of character. In January, Mr Morales dropped a campaign for the assembly to approve constitutional articles by simple majority after this provoked huge protests in the eastern regions. With the United States, he has arranged a wary, and perhaps temporary, truce. Some 40,000 jobs, mainly in the poor western highlands, depend directly on American trade concessions, now up for renewal. The United States, eager to avoid rupture, is overlooking Mr Morales's enthusiasm for coca, the raw material for cocaine. Recently, he joined the American ambassador to open a newly-

illuminated road tunnel— something it is hard to imagine Mr Chávez doing.

But charging ahead when he can, and retreating when he must, is not a strategy for governance. The inexperienced, often inept, government has achieved little beyond boosting ethnic and national pride, and gas royalties. Bolivia is enjoying multiple windfalls, from high commodity prices to remittances and debt forgiveness. Even so, the economy grew less than the Latin American average last year, points out Gonzalo Chávez of the Catholic University in La Paz. More than half the population is poor, four-fifths of workers labour in the informal economy and emigration continues. Mining and gas apart, private investment is a negligible 2-3% of GDP. Yet in April Bolivia said it would withdraw from an international arbitration panel that investors use to resolve disputes. If he does not create good jobs, no amount of constitutional gimmickry will sustain Mr Morales's current popularity.

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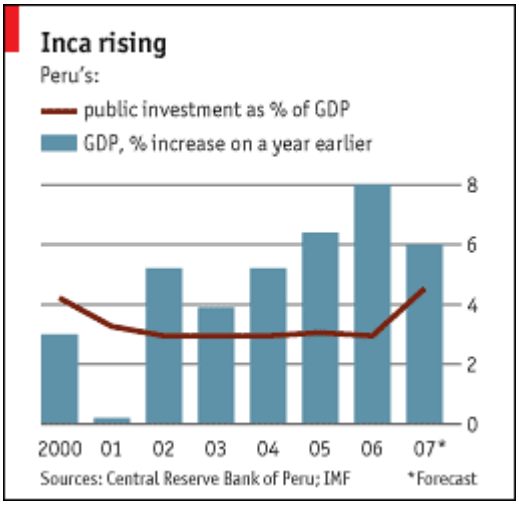
Peru

# Unshocked

Jun 7th 2007 | LIMA
From The Economist print edition

## An attempt to spread economic growth

Get article background




HE SHOULD be sitting in a classroom. But Ever Castillo, a 14-year-old boy, spends his days by the side of a dirt road near his home in the town of Lajas. With his friends, he pounds rocks into pebbles which they hope to sell to contractors, if and when local officials move to repair the dilapidated road that runs down from Lajas, in Peru's northern Andes, to the Pacific coast. Ever is exactly the kind of person that Peru's president, Alan García, hopes will benefit from a bold attempt to spread the benefits of economic growth.

Helped by high mineral prices and by sound policies, the economy is booming (see chart). But almost half of Peruvians still live in poverty, if the official figures are to be believed, and the number is falling only slowly. To speed it up, after taking office last year Mr García promised an "investment shock". This involves $1 billion in public investment, to be spent in a year, mainly on building roads, on drinking-water schemes, and on improving schools and health facilities.

Translating this into improvements in places like Lajas is easier said than done—and not because money is short. Only 30% of $520m budgeted in a first phase launched last September has been spent. More than a thousand projects, worth a total of $475m, have been approved by the finance ministry in Lima. The ministry has opened regional offices to ease paperwork. But lower tiers of government have failed to respond.

The need is clear: according to a study by the Peruvian Economic Institute, a think-tank, Peru needs to spend $22 billion to bring its infrastructure up to the level of its neighbour, Chile. The main reason for delay seems to be the inexperience or ineptitude of local officials. In local elections shortly after the "shock" was launched, only two of Peru's 25 regional presidents were re-elected. Most of their replacements had little previous experience of government.

Last month an impatient Mr García signed an order to loosen financial controls so that state bodies and local governments could spend faster. Opponents complained that he was opening the door to corruption. Luis Carranza, the finance minister, came close to resigning over the decree. He stayed on after the order's scope was narrowed to small projects. A committee has been set up to find ways to speed up project approval.

The slow pace of public investment leads some Peruvians to argue that the government should use other tools to fight poverty. Some suggest a sharp rise in the monthly minimum wage of 500 nuevos soles ($157). Others want a faster roll-out of a targeted anti-poverty programme of the kind pioneered by Mexico and Brazil. Whatever the answer, the government has no more important task than ensuring that continued economic growth translates into faster reductions in poverty.

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The Caribbean

# Islam in the sun

Jun 7th 2007 | PORT OF SPAIN
From The Economist print edition

**Questions behind a terror plot**

THE latest alleged terror plot against America came from an unlikely direction: the south-eastern Caribbean. Four men were arrested this week, one in Brooklyn and three in Trinidad, all charged with planning to blow up fuel tanks and pipelines at New York's Kennedy Airport. Three of the suspects are Guyanese and one Trinidadian, though one lived in New York. The plot did not get beyond the most preliminary planning. But for American officials, it raises the troubling spectre of Islamic fundamentalism acquiring a foothold close to the American mainland.

The arrested men are all Afro-Caribbean converts to Islam. They hardly fit the stereotype of young radicals. The youngest is 55, the oldest 63. One is a former opposition MP and mayor in Guyana. Another is the well-liked imam of a suburban Trinidad mosque. Following their arrests, New York's police commissioner called the Caribbean a “crucible in the foment of Islamic radicalism”.

In places like Trinidad, that sounds a little alarmist. There are around 200,000 Muslims in the 15 mainly small countries of the Caribbean Community, most of them in Trinidad, Guyana and Suriname. Most are descended from Asian indentured labourers brought in to work the sugar fields after the end of slavery. Since the 1960s these have been joined by a trickle of converts from Christianity.

Islam is a well-established part of national life in the south-eastern Caribbean. Muslim Eid is a public holiday, alongside Hindu Diwali and Christmas. Muslims are widely represented in business and the professions, though rather less so in politics. Some are devout; others snaffle the odd beer or marijuana spliff. Few have any time for terrorism.

But this mainstream community has also contained a small minority of radicals. In Trinidad, they include Yasin Abu Bakr, a former policeman once known as Lennox Phillip, who leads a group called the Jamaat al Muslimeen. In 1990, more than a hundred of his followers staged an attempted coup, holding the prime minister and parliament hostage at gunpoint for six days, while looting and violence left 24 dead in Port of Spain.

Mr Abu Bakr extracted an amnesty for the coup attempt. He has since been accused of various rackets but has never been convicted. American officials claim those arrested for the Kennedy Airport plot were in touch with him. He said that he had never met them, though one of the four attended his mosque.

Last month, the British government deported to Jamaica Abdullah al-Faisal, once known as Trevor Forrest, an extremist preacher who had served half of a seven-year sentence for inciting murder. Attendees at Mr Forrest's Brixton mosque included Richard Reid, the would-be shoebomber, and Germaine Lindsay, one of the London suicide-bombers.

Whether or not the Kennedy four are guilty, their arrest has shaken governments in the English-speaking Caribbean. Some 1.5m migrants from the region live in the United States and links are close. Now visas may be harder to obtain and there will be pressure to step up surveillance back home.

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Colombia

# Femme fatale

Jun 7th 2007 | BOGOTÁ AND PARIS
From The Economist print edition

## Two presidents seek a hostage deal

Get article background

AP

The Betancourts have the ear of the Elysée

FOR most of his nearly five years as Colombia's president, Álvaro Uribe has rejected any deal with the FARC guerrillas for a prisoner swap to secure the release of some 60 prominent hostages. So why has he suddenly freed nearly 200 FARC prisoners, including Rodrigo Granda, one of its leaders?

Colombians, most of whom support Mr Uribe's tough security policies, are baffled. The FARC called the move a “farce”. Even more farcically, Mr Granda protested against his own release. The FARC insists that it will free its hostages, who include Ingrid Betancourt, a former presidential candidate seized in 2002, only after a negotiation to be held in an area from which the government would withdraw its troops. Though Mr Uribe has sometimes wavered on this, he again rejected it this week.

The explanation for Mr Uribe's behaviour probably lies in his desperate need for friends abroad. Though he has made Colombia much safer, the Democrats who control the United States' Congress criticise his government's human-rights record. The president arrived in Washington, DC, on June 6th for his second lobbying trip in a month. Earlier, a congressional sub-committee voted to cut proposed aid to Colombia of some $700m by 10% and shift much of it from military to social programmes. The Democrats are also refusing to ratify a free-trade agreement with Colombia.

Mr Uribe's opponents say the prisoner release is to pave the way for a controversial proposal to free a dozen pro-government legislators jailed on suspicion of links with right-wing paramilitaries. But Mr Uribe said he had freed Mr Granda, whose seizure in Venezuela three years ago caused a diplomatic row, at the request of Nicolas Sarkozy, France's new president.

Mr Sarkozy's office said that he hoped that Mr Granda's release could help free the hostages. Ms Betancourt is a minor figure in Colombia but an iconic one in France, where she studied. She has dual citizenship and two French children. A vast portrait of her hangs from the façade of Paris's town hall. When foreign minister in 2003, Dominique de Villepin, her former professor, sent a crack team to rescue her; their mission was embarrassingly aborted in Brazil.

Since his election, Mr Sarkozy has taken up her case with vigour, twice inviting her children to the Elysée Palace. Liberating Ms Betancourt would be a spectacular political coup for a president whose action-man style marks a break with the era of Jacques Chirac and who faces two-round legislative elections on June 10th and 17th.

At what price, though? French diplomats insist they merely want to “facilitate” a “humanitarian exchange”, and that they are not negotiating directly with the FARC, which is listed by Europe and the United States as a terrorist organisation. “We do not consider that we are breaching our principles,” said one diplomat. That may not impress Colombians, who watched as the FARC kidnapped a police commander and two others this week.

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China's migrant workers

# No place to call home

Jun 7th 2007 | BEIJING
From The Economist print edition

Eyevine

**There's plenty of work, but nowhere to live**

IN A narrow alleyway in Liguanzhuang village, residents idle away a hot afternoon near a stinking rubbish dump, worrying about when the bulldozers will come. To prepare for the Olympic Games next year, Beijing's authorities are removing such eyesores. Old villages surrounded by the expanding city are being demolished. With them goes cheap housing, vital to the city's huge pool of migrant workers. China does not like to admit it has slums. But it does, and it will find it needs them.

In the past two years or so, cities across China have announced plans to “transform” these “villages within cities”. Because of the Olympics in August 2008, Beijing faces a particularly tight deadline. The aim is to “renovate” (ie, usually, flatten) 171 urban villages by the end of this year. Between 2005, when the campaign was launched, and the end of last year, 114 of them were thus transformed.

Officials have given few details of the number of people affected. A state-controlled newspaper in 2005 said 33,935 households in 231 villages would be moved out. But these are only the “permanent residents”, ie, the villages' original inhabitants. They are heavily outnumbered by rural migrants, most of whom work as traders or in the city's service and construction industries. Their numbers have soared as Beijing has boomed.

In a city of fast-rising house prices, the former villages offer affordable accommodation. Rents are as low as 200 yuan ($25) a month. The villagers of Liguanzhuang, a cluster of shabby single-storey brick houses in the north-east of the city, can afford to sit around moaning. They lost their fields several years ago, but their houses are large by city standards. They have roofed over their courtyards and partitioned their homes into tiny, dark rooms, which they rent out. Conditions in the village are grim. The only lavatories are foul-smelling public ones. But the slumlords are making an easy living.

Breaking the usual taboo, Qiu Baoxing, a deputy minister of construction, admitted in a magazine article in May that many villages within cities had become “Chinese-style slums”. They are indeed distinctive. In spite of the rapid influx of rural labour into the cities (by official estimates an average of 8.4m people a year between 2001 and 2005, bringing the total to around 120m), they have not spawned huge shanty towns. This is mainly because of controls on the use of rural land for construction. Instead, scattered villages within cities, often behind walls built to hide their squalor, and old state-owned apartment buildings have filled the gap.

The villages have survived thanks to the haphazard expansion of Chinese cities, driven more by the whims of developers and local governments than by grand municipal plans. It has often proved easiest and cheapest for these governments to appropriate rural farmland and leave the farmers in place. To keep them happy, officials change their residential status from rural to urban. This gives them welfare benefits

and better access to health care, education and city employment.

Some governments are now regretting their hands-off approach. Many of the villages have turned into not just slums but also criminal enclaves. In Weizikeng village about 3km (2 miles) south of Liguanzhuang, police recently cracked down on a thriving black market for stolen bicycles. The official media often portray the villages as rife with drugs, gambling and prostitution—a “time-bomb” of disorder, as a government adviser put it last year.

Some officials say that controlling the villages was made even harder by the scrapping four years ago of police powers to detain any migrant found without the correct permits. Such people were often put in prison camps for days or weeks and then sent home. From the 1950s on, Chinese governments enforced a rigid separation between urban and rural areas. But this began to break down in the 1990s because of the urban demand for cheap labour. This demand, say some Chinese academics, will impede government efforts to eradicate the villages. City governments build low-cost housing for the poor, but only for registered city residents, and often it is available only at much higher prices than rooms in the villages. Du Yang of the Chinese Academy of Social Sciences says a lack of low-cost housing for migrants could worsen an emerging shortage of young labour from the countryside.

The eventual goal of Beijing's onslaught is still unclear. A government survey in 2002 found 332 villages with a total population of more than 800,000 migrants in the eight urban districts of the city proper—nearly one-third of the total migrant population. Bao Lufang of the Beijing Academy of Social Sciences says the government should refrain from demolishing all of them because of the vital role they play in encouraging migration.

In 2005, the government reckoned that by the end of this year, it would have had to spend 15.5 billion yuan ($2 billion) on dealing with the villages. As registered urban residents, the house-owners are entitled to urban levels of compensation. In Liguanzhuang they complain that this will be far from enough. Moving would deprive them of their rental income.

No plans have been announced for helping the migrants find new homes. In a recent study, Miss Bao wrote that fewer than 10% of those surveyed said they would return to their home provinces if they were forced out of their present accommodation by demolition. More than 45% said they would just move somewhere else around the capital. But most likely it would have to be farther out. Beijing's registered residents may notice that hiring good help is getting pricier.

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Pork in China

# Year of the golden pig

Jun 7th 2007
From The Economist print edition

### Why are prices soaring?

WHILE many China-watchers fret about the consequences of a collapse of China's stockmarket, Wen Jiabao, the prime minister, seems more worried about the risk of social unrest as a result of the rocketing price of pork. A 50% rise in the average nationwide price over the past year is causing squeals of alarm. Last week Mr Wen went so far as to visit a farm to show he is taking the issue seriously.

Mr Wen promised that the government would act to ensure adequate supplies of pork; if necessary, to stabilise prices it can release stocks from its strategic reserves of both frozen pork and live pigs. Pork is China's staple meat. The average person eats more pork than in any country other than Germany. But it accounts for almost 4% of China's consumer-price basket, against less than 1% in Germany. Rising pork prices could therefore push up China's inflation rate over coming months. Jiming Ha, chief economist at China International Capital Corporation, estimates that inflation will rise to 3.4% in May, from 3% in April.

Economists are scratching their heads to explain the price jump. Some blame it on blue-ear, a contagious disease which may have killed 18,000 or 20m pigs, depending on whom you believe. Others say the main cause is the surge in global grain prices, which have increased the cost of feed for pigs. It is not only the Chinese who are paying more for their pork. Capital Economics, a London-based economics firm, points out that American pork prices have also jumped by more than 50% over the past year.

Economists, however, may recall the old “hog cycle” that they learnt about in their first year of economics. This explains why prices in certain markets are subject to periodic booms and busts, because of a lag between the response in production to a change of price. Chinese pork prices today are not much higher than at their peak in 2004. High prices then prompted farmers to produce more, and prices fell sharply for two years. That in turn discouraged farmers from raising pigs. The inevitable result was today's higher prices, which will probably lead to glut and falling prices tomorrow. Pigs may fly. But not forever.

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Climate change

# Fresh air

Jun 7th 2007
From The Economist print edition

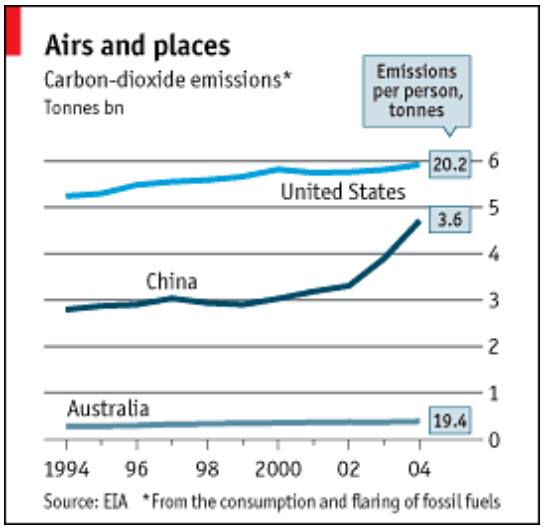
**China and Australia unveil new policies on global warming**

Get article background

GOVERNMENTS that do not want to do anything about global warming often point to China, which will soon become the biggest source of the greenhouse gases that are heating up the planet. What point is there cutting back on our own emissions, the foot-draggers ask, if our efforts are obscured by a vast and growing cloud of pollution from China? In an attempt to counter this argument, China unveiled a new policy on global warming this week. The day before, Australia, a charter member of the "not-without-China" camp, had reversed its position and resolved to cap its own emissions irrespective of China's actions. But America, which has also just declared itself willing to limit its emissions, is calling for negotiations on a scheme to tackle global warming involving all big polluters, including China.

All these announcements came just before the annual summit of the Group of Eight, a club for rich countries, which this year is focusing on climate change. Some G8 members, such as Germany and Britain, are keen to adopt tough measures to fight climate change. But America prefers a more leisurely approach. Meanwhile, the biggest poor countries, including India and China, are also attending—setting the stage for a heated debate.

China argues that rich countries are responsible for most of the greenhouse gases in the atmosphere, and so should shoulder most of the burden of reducing them. It also points out that although its overall emissions are huge and growing fast (they will surpass America's this year, according to the International Energy Agency), they are still far lower than America's when measured per person (see chart). It would be unfair, it argues, to deprive China's citizens of the chance to live as lavishly as Americans do, despite all the pollution that might entail.




Moreover, China is already trying to curb its emissions. In fact, many measures announced this week are old policies repackaged. Ma Kai, the minister whose brief includes global warming, highlighted China's commitment to generate 10% of its electricity from renewable sources by 2010. Much of that will come from hydroelectric power. But China is also the world's fifth-biggest user of wind turbines, and the biggest consumer of the sort of solar panels used to heat water.

Greater use of nuclear power should also help reduce China's emissions. The government is building four new nuclear reactors, and earlier this year placed an order for another four—a far more ambitious construction programme than any other country save Russia.

China also has tougher standards for fuel efficiency than America, for one. Its cars use 6.9 litres to travel 100km (34 miles to the gallon) compared with 9.8 litres in America. By next year the Chinese standard will rise to 6.5 litres—a level America will take a decade to reach under the most ambitious plans.

Mr Ma also pointed to China's success in curbing the growth in its population, without which he claims the country would now be belching out 330m more tonnes of carbon dioxide each year—an extra 5% or so. Reforestation, he said, had absorbed another 5 billion tonnes of carbon dioxide over the past 25 years, or just less than China's current annual emissions. Such measures would continue to yield savings in the future, he maintained.

## The China syndrome

All this is supposed to help China reduce energy intensity (the ratio of energy-consumption to economic output) by 20% between 2005 and 2010. Energy intensity fell by only 1.2% last year, less than the 4% required to meet the 2010 goal. But it did fall by over 4% a year between 1990 and 2005. Thanks to China's galloping economic growth, however, its emissions will continue to increase even if it meets its energy-intensity target.

Until recently, Australia's government had cited China's policies as one reason to allow its own emissions to grow unfettered. But the opposition disagreed, as did voters, according to most opinion polls. With elections approaching, John Howard, the prime minister, has changed course abruptly and announced that Australia will adopt a cap-and-trade system for greenhouse gases by 2012. But the level of the cap, he said, would not be set until after the elections—and the competitive threat to Australian firms from less carbon-constrained places such as China will be one factor considered when setting it.

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Laos

# Not-so-secret war

Jun 7th 2007 | BANGKOK
From The Economist print edition

**America foils a coup plot against one of its former enemies**

Get article background

A GENERATION later, the Vietnam war still haunts Indochina and America. Among the ghosts are ten people arrested this week in America, accused, of all things, of plotting to topple the communist government in Laos. The bizarre tale has its origins in a “secret war”. During the Vietnam war, American spies recruited members of Laos's Hmong ethnic minority to attack Vietnamese supply lines. After the fall of Vietnam and Laos in 1975, over 100,000 Hmong rebels settled in America. One of their commanders, General Vang Pao, continued to collect money from them, promising to lead them home in triumph one day.

As years went by with no sign of Laos's communists being dislodged from power, many Hmong exiles in America began to wonder just where their money was going. Then, on June 4th, federal prosecutors announced that they had arrested Mr Vang Pao and nine others, after uncovering a plot to buy guns, missiles and explosives to mount a coup in Laos. The charges filed against the group say that they had hired mercenaries to blow up government buildings in the capital, Vientiane.

American undercover agents mounted a sting operation after being tipped off about the plotters' attempts to buy weapons. One posed as a shady arms dealer, secretly recording a meeting in Sacramento with Mr Vang Pao and Harrison Jack, an American veteran of the Vietnam war who is among those arrested. After being shown a selection of machine-guns, anti-tank rockets and other weaponry, they are said to have placed an order worth almost $10m. Conspiring to kill people in a foreign country—one of the charges the group faces—can result in life imprisonment. Their lawyers deny the charges.

How much danger Laos's government was in may emerge only as the ten men face trial. But it seems delighted that America, its former foe, thwarted the plot rather than encouraged it. In Laos itself, the communist party maintains its monopoly on politics and there is no sign of any organised opposition. Some Hmong have joined the ruling party and risen high in its ranks. However, sporadic fighting has continued over the years between government forces and unidentified insurgents. In May the American embassy in Vientiane issued public warnings about reported fighting not far north of the capital.

The Lao government plays down such clashes as isolated incidents, rather than part of an organised insurgency. Human-rights groups accuse it of hunting down the bedraggled remnants of the Hmong secret army still hiding out in the forests. Last year several hundred of these surrendered. Thailand would like to send back the Hmong migrants sheltering in its border regions but the United Nations' refugee agency is pressing it not to. Nevertheless, in late May the Thai authorities sent back a group of 31 Hmong.

The government promises to help those who surrender or are sent back, but refuses to let outsiders check

what happens to them. As for the Hmong now living in the West, many are too young to remember their ancestral land. As the years pass by, their interest in returning, let alone toppling Laos's government, is dimming.

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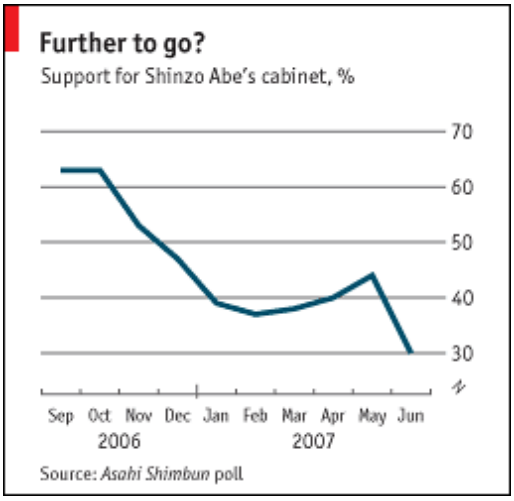
Japan

# Shinzo swings low

Jun 7th 2007 | TOKYO
From The Economist print edition

**Can the prime minister save his skin?**




AFTER a heartening spring for Shinzo Abe, Japan's prime minister, summer is looking rotten. On June 4th a survey in the *Asahi Shimbun* newspaper showed support for Mr Abe's government falling to an all-time low of 30%, from 60% last September (see chart).

The latest dip in the government's popularity follows the suicide on May 28th of Toshikatsu Matsuoka, Mr Abe's farm minister. Mr Matsuoka was enmeshed in a corruption scandal that threatened to spread from fiddling his office expenses to rigging bids for public contracts. Days later, the main opposition party, the Democratic Party of Japan (DPJ), helped bring a long-festering mess at the national pensions agency to a head.

The suicide suggested that the ruling coalition led by the Liberal Democratic Party (LDP) had not, for all Mr Abe's modernising zeal, shed its old sleazy ways. The pensions mess spoke of rank incompetence: since the dawn of the computer age, the Social Insurance Agency has lost track of at least 50m payments records, and as a result many retirees are being short-changed.

The outcome for Mr Abe has been swift and devastating. Earlier this year, he had won praise for improving ties with China, while at home attacking unwholesome links between ministries and industry. As a consequence, his approval ratings had leapt after sliding almost from the moment he came to office last September. Now, with Mr Abe facing his first real electoral test on July 22nd, when half the seats in the upper house of the Diet (parliament) are up for grabs, the LDP seems in a tail-spin.

The party has forced Mr Abe into an about-turn. The prime minister had wanted to campaign on emotive issues such as Japan's standing in the world and constitutional change. Now the government is rushing out proposals to fix the pensions mess. It is tightening rules on political funding. On June 4th, Mr Abe bowed to pressure from LDP members to bring forward a bill aimed at preventing ministries from parachuting retiring bureaucrats into industries they previously regulated.

Nobuteru Ishihara, the acting secretary-general of the LDP, says Mr Abe, a close friend, is fighting for his survival. The party, he says, is being mobilised as if for a general election. Meanwhile, he hopes the government's new initiatives will be appreciated by the public in a month or so. That does not leave much time. For now, Mr Abe's strongest card is that in the LDP he has no obvious replacement.

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Pakistan's press

# Gagging on it

Jun 7th 2007
From The Economist print edition

**Another step on the slippery authoritarian slope**

AN ERA of press freedom in Pakistan came close to an end on June 4th. General Pervez Musharraf, the president, decreed new powers to the Pakistan Electronic Media Regulatory Authority (PEMRA), allowing it to seal the offices of television and radio broadcasters, seize equipment and suspend operating licences. There was widespread outrage and within days his government was forced to backtrack, suspending the ordinance until a committee had reviewed it.

AFP

**Not easy to silence**

Charges were also dropped against 200 journalists who had protested in the capital, Islamabad, in defiance of a ban on such demonstrations. Earlier, the government had nudged cable-television operators in the capital into taking some channels off the air in the “national interest”. They had offended the government by disregarding “unofficial” warnings not to transmit live coverage of the rallies of the ousted chief justice of Pakistan, Iftikhar Chaudhry, who in recent months has become General Musharraf's nemesis. On June 6th dozens of activists were detained ahead of rallies planned the next day to demonstrate support for Mr Chaudhry.

Newspapers were reported to be next on the government's hit list: cartoons and commentary that “defamed” General Musharraf and the armed forces would not be tolerated. The crackdown followed a meeting of top military commanders chaired by the general in which “strong exception” was taken to programmes and commentary “maligning” the army.

The bluff general and carping journos used to get along well. When General Musharraf seized power in 1999, the Pakistani press shed few tears for the ousted “democratic” prime minister, Nawaz Sharif, because it had received plenty of stick from him. Indeed, General Musharraf was cheered for allowing a free press to flourish and private television and radio channels to proliferate. His predecessors had staunchly resisted their spread, but today there are over 40 television channels and dozens of FM radio stations. General Musharraf became a darling of the press, giving candid interviews and shrugging off criticism as a healthy corrective. But the press has been highlighting Mr Chaudhry's unprecedented support, and the general, like his predecessors, has come to view it as part of his problem.

The presidential ordinance gagging the press came two days before parliament was to meet. It was challenged in the courts on the ground that it violates fundamental rights. It is also constitutionally dubious because the president can promulgate short-term ordinances by decree only when parliament is not in session. Worse, PEMRA would now be allowed to make new rules on the hoof, without informing

parliament. The ordinance also withdraws parts of the original charter giving the press the right to be heard by a Council of Complaints before being punished.

The besieged press fought back, accusing the government of sacrificing freedom on the altar of political damage-control just months ahead of general and presidential elections. Most analysts saw it as a sign of political weakness. Others went further, saying General Musharraf's regime has started to unravel. With his prime minister promising to delay implementation of a presidential decree, General Musharraf looks both a little desperate, and humiliated.

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Kenya

# Going up or down?

Jun 7th 2007 | KISUMU AND NAIROBI
From The Economist print edition

Reuters

**As the world's group of rich countries discusses aid to Africa, a correspondent who lived in Kenya four decades ago looks glumly at it now—but sees glints of hope**

Get article background

ONE thing you notice on returning to Kenya after many years is that someone has done splendidly out of selling pea-green, bright red and banana-yellow paint. In village after village, however crummy the shops and muddily rutted the single street, you see a smartly painted green building and an even more garish red-and-yellow one, where you can buy scratch cards to top up your mobile phone either with Safaricom (green) or Celtel (yellow and red), the country's two rival firms.

They are potent symbols of the new Kenya. In 2000 some 300,000 people used mobile phones; now, in a country of 35m-plus, nearly 9m do. As a result, the lives of millions, especially the poor rural majority, have been sharply improved, because they can get round many of the obstacles posed by the decrepitude of the state-run infrastructure: of the 300,000-odd land-lines in the country, probably two-thirds are usually on the blink.

Poor Kenyan peasants wondering whether it is worth spending a day taking a bus to market to sell a sack of onions can find out the prices with just one call. Anyone with cash to transfer across the country can do so by text message, if they use Safaricom, the beefier of the two rivals. Proportionately, more people make mobile-phone calls in Nairobi, Kenya's capital, than they do in New York.

It is notable that both Safaricom and Celtel owe little to the Kenyan state or to international aid for their success—except for their licences and for the start-up use of the network owned by the battered state-run company—and a lot to Kenya's much-needed opening to foreign capital. Though (whisper it softly) the family of Daniel arap Moi, the much reviled former president, is said to have a secret stake in Safaricom, both companies are mainly foreign-owned: Celtel by a Kuwaiti company, MTC, which bought out its Sudanese founder, Mo Ibrahim; while Safaricom's largest shareholder is Britain's Vodafone.

A big reason for their success stems directly from the failure of the Kenyan state which, typically, proved unable to provide a decent telephone service of its own. This is a theme that resonates across Kenya. Where the country has done well, it is often despite rather than because of the government. When Kenyans have been able to do things off their own bat, they have invariably done better than when they have been locked into state-controlled schemes.

Forty years ago, in the early flush of independence, the government tried to do everything. Now the bits of the economy that have bounded ahead are those, such as horticulture, that owe little to the politicians. Last month the agriculture ministry said it would let the private sector provide “extension

services”, which help small farmers with all manner of inputs. Parastatal agencies that were similarly supposed to help farmers market their stuff and keep prices stable, but which proved hopelessly corrupt and incompetent, will be “drastically reduced”. Once Kenya Airways was sold, it took off to become one of Africa's most profitable and efficient airlines.

In an array of services, from education to health care, from providing security to preserving the environment, the public sector has failed dismally while the private side has picked up the slack. In Nairobi, people trust private security guards—some 100,000 of them—far more than the police for protection. In the remote district of Turkana, churches provide seven out of the vast area's eight secondary schools. Independent outfits such as the Green Belt Movement, created by a Nobel peace-prize winner, Wangari Maathai, have done far more than the government to stop forests being chopped down.

Private charities and lobbies, both foreign and home-grown, have proved more effective than the government in helping to conserve the elephants and other game that are the lifeblood of Kenya's vital tourist industry. Private medical foundations have played a huge part in providing anti-retroviral drugs to stem the plague of AIDS, while state-run hospitals are often pits of misery and incompetence.

The younger generation of Kenyans—more outward-looking, better educated, a bit less tribal-minded, less dependent on the patronage of state and local “big men”—seems sharply aware of all this. One economist talks hopefully of the “cheetah generation” taking over from the “hippos”. But the cheetahs have a lot of catching up to do.

Kenya's general state of disrepair is striking. Tens of billions of dollars of aid have been spent, yet in many respects the country's infrastructure is worse than it was 40 years ago. Roads have crumbled away, the rail service has all but collapsed, ports are clogged and some have even closed. Many hospitals and schools are dilapidated. Forests have been cut down, rivers have silted up; grazing land has been eroded, and fencing posts in once well-run commercial farms uprooted and burnt.

## The centre could not hold

Kenya often feels like a country that cannot cope. Driving around, in country or town, the sheer burgeoning mass of people hits the eye. The population has exploded out of control—with nothing like the rate of economic growth to sustain it. From around 1m people in 1900, the number of Kenyans had climbed to 4m after the second world war; though fewer than 8m at independence in 1963, Kenyans number more than 35m today. Recent projections suggest that, even taking account of the continuing ravages of AIDS, the population will exceed 40m in 2010, rising to 57m by 2025. Life expectancy went up from 44 years at independence to 62 in 1984, then slumped again, to 49 in 2000 and 52 today. Though the proportion of adults infected by HIV has dipped from a high of 14% in 1998, it still afflicts about 6%, or 1.3m people, says the UN. AIDS has orphaned more than 1m children.

In the western province of Nyanza, one of the most populous parts of the country, edging Lake Victoria, a family's average landholding is 0.8 hectares (less than two acres) and the average number of children between seven and eight; the death rate from AIDS has been particularly high. In one classroom of a school in the western district of Sauri, two-thirds of the children are AIDS orphans. Coffins are for sale at the roadside. Across Kenya, at virtually every road junction, the commonest sign-posts are to churches, mostly of the home-grown African variety, promising solace, guidance and the hope of prosperity.

Equally striking is the new urban sprawl—and the spread of slums. Nairobi is one of the world's fastest-growing cities: at independence it embraced a little over 500,000 people; now it may have more than 6m, three-quarters of whom are reckoned to be squashed into about 2% of its metropolitan area. It is a potent magnet for those millions of country people who can barely live off the measly landholdings available to them. The choice, for many, is going hungry in the countryside or finding a job while living in squalor in the towns.

Four decades ago, the Nairobi slum of Kibera, barely two kilometres (a mile) from the leafy charm of the city centre, hardly existed. Now it houses between 600,000 and 1.2m people—no one knows; for sure, it is one of Africa's biggest slums. It is also one of the most extortionate and violent. There is no paving, scant electricity and so little lighting, no sanitation; people have to pay even to use the rare communal lavatories that often overflow or to take a shower, so their ablutions often take place on sidewalks riven with makeshift drains. When it rains, the sewage spews all over. Wet or dry, the place stinks.

Rising crime is another feature of modern Kenya. It has grown so fast that central Nairobi, once a hive of restaurants and night-clubs, feels almost deserted at night. “Never walk at night in the centre of Nairobi, even for a short distance,” says the UN's local website. Many drivers are edgy about going at night from central or eastern Nairobi to the two prosperous villages of Langata and Karen, just outside the city, because of car-jackings. The police are often suspected of involvement.

They certainly cannot cope. Instead, there is a plethora of private security guards. Virtually no member of the middle class, which includes just about all expatriate workers, is without at least one all-night guard. Contracts for professionals working for the UN and many of the smarter NGOs often include no fewer than three guards as part of the package. By some counts, there are more than 100,000 illegal guns floating around.

More recently, a strange bandit sect called *Mungiki* has been terrorising people in the northern hinterland of Nairobi, forcing protection money out of drivers of *matatus* (minibuses) and killing those who refuse. Some politicians have been accused of being behind the bandits. *Mungiki* recently stuck the severed head of one of their opponents on a post outside a chief's office. This week police raided a Nairobi slum and shot dead at least 22 suspects.

The most visible example of Kenya's regression is the roads. In the early 1970s you could drive from Nairobi to Mombasa, the country's Indian Ocean port, in four hours; now, because of pot-holes and diversions and hold-ups, it can take eight. Another main road, north-west to Uganda, which should be one of Africa's great arteries, is pitted with craters often two feet deep, reducing traffic to little better than walking pace for stretches of 15km or so.

Swathes of what should be one of the best tourist roads in the country, leading to the Masai Mara reserve, one of Africa's finest game-viewing sites, are barely better than a rock-strewn, muddily rutted farm track—that was once smooth tarmac. The government says it intends to spend $1 billion this year on improvements; at present, the road system is a bad joke.

## Scambags galore

Why the mess? The answer is misguided economic policies, mismanagement, poor maintenance, sloppiness, tribalism and corruption. This litany of failings is almost entirely the fault of Kenyans themselves: the politicians they have allowed to rule over them and rip them off; the civil servants and road builders (some of them foreign) who have skimmed off contracts or simply not bothered to do the job; and the dishonesty, venality and fatalism that have gripped society at large.

Corruption took hold of Kenya almost immediately after independence, as the regime of Jomo Kenyatta sought, in a hurry, to shift political and economic power from whites and Indians into the hands of a new African elite. After Kenyatta's death in 1978, his former vice-president, Daniel arap Moi, continued this system of patronage, authoritarian rule and personal family enrichment, while tilting the centre of gravity

of power away from the Kikuyu to a much smaller cluster of Kalenjin-speaking tribes, of which his own Tugen people is one of the smallest.

The standard method by which this sort of system persists—the distribution of franchises, permits and visas, and the appointments to practically all the key jobs in government, the civil service and parastatal agencies by virtue of loyalty and tribe—helped the economy lose momentum. A new elite corruptly took an ever greater share of the fruits of independence and outside investors became ever warier.

A number of notorious frauds in the past 15 years have taken vast chunks of wealth out of the economy and into the hands of a handful of politicians and their friends. In one racket, known as the Goldenberg scandal, some $600m was secreted abroad and into the bank accounts of numerous ministers and their friends, thanks to the fictitious re-export of gold and diamonds that purported to come into Kenya from third countries.

The current president, Mwai Kibaki, elected in 2002 on a wave of optimism that he would tackle such corruption and bring the villains to book, has done no such thing. Several prime suspects remain ministers. Not a single top politician has been prosecuted, let alone convicted.

“Corruption is as bad as it's ever been,” says Richard Leakey, an outstanding palaeontologist and conservationist who is also a remarkable campaigner for cleaner government. “Kibaki has made no progress.”

But corruption is not just the habit of top people. Many Kenyans think you have to cheat to survive. After all, the wages of the poor are tiny. Kenyans, as they were in the colonial era, have been locked into a two-tier system whereby professional wages remain on a different planet from those of the rural and urban poor. An MP's salary, for instance, is about $60,000 a year, rising to about double that amount if allowances are included. By comparison, the official minimum wage is about $700 a year, GDP per head about $1,500. The very poorest, who slip under the minimum-wage threshold to take the most menial and casual jobs, earn less than $200 a year. Not surprisingly, such differentials foster cynical attitudes. For many, the temptation to steal to live even modestly is irresistible. The scam is a Kenyan way of life.

## Tribe still beats class, any day

Tribalism, the motor of politics in Kenya, is as potent and prevalent as ever. Mr Kibaki, as a seasoned political operator, has the usual full range of ethnic groups represented in his cabinet. But there is little doubt that his own Kikuyu, who were in the driving seat from 1963 until 1978 under Kenyatta but then got pushed aside by Mr Moi, are back behind the wheel. “It is our turn to eat,” goes their refrain.

Several of the other leading tribes are increasingly resentful of the Kikuyu, who are both the most numerous and the richest. The Luo, in the west, have long felt most left out. To cite just one comparative yardstick, the lifespan of a Luo living in Homa Bay, on Lake Victoria, averages 38; a Kikuyu living in the tribal heartland in Nyeri can expect to reach 62. Some 12% of households in the predominantly Kikuyu Central Province have piped water, against just 1% in the Luo province of Nyanza.

Now the non-Kikuyus feel strongly it is their turn next. “A Kikuyu cannot follow a Kikuyu as president of this country”, says a former minister, himself a Kikuyu. “We haven't reached that stage yet.” Michael Chege, an academic who advises the government, puts it bluntly: “Tribe still beats class.” Raila Odinga, the Luos' undisputed leader, as was his father Oginga Odinga before him, accuses the government of being “very tribal.” Mr Leakey says “tribal feeling has superseded anti-white feeling.”

Yet, despite all this gloom and worry, Kenya is a remarkably resilient country with a vast font of untapped energy and creativity. After four decades of disappointment, including the Kibaki administration, there is undoubtedly a renewal of hope.

For one thing, despite its feebleness against corruption, Mr Kibaki's government is definitely better than its predecessors. Its policy of continuing economic liberalisation has reaped rewards. The economy has grown on average by nearly 6% in the past four years and is still picking up speed—though it probably needs to hit 10% before it really takes off.

Kenya is far freer than it was in the one-party era of Presidents Kenyatta and Moi. The press is vibrant and newspapers like the *Daily Nation* and the *Standard*, not to mention at least 47 private radio stations

and lots of bouncy bloggers, air problems such as corruption with admirable candour. Women's rights have also improved under Mr Kibaki, with a benchmark Sexual Offences Act being passed a year ago. The government has brought in free primary-school education for all.

Still, it is plainly time for the ailing, 74-year-old Mr Kibaki and his lumbering, greedy hippos to give way to the cheetahs. They show no sign of doing so. As a result, many of Mr Kibaki's early supporters have peeled away to form the Orange Democratic Movement, echoing other brightly coloured movements around the world that have toppled moribund regimes.

AFP

**A cheetah in the making?**

The Orange people tend to be younger and better educated, have a stronger sense of democracy, are keener to decentralise power and reduce the powers of the presidency, and have a better idea of the world outside and how to make a modern economy fizz. But they have bickered endlessly over who should lead them into the presidential and parliamentary elections due in December. Kalonzo Musyoka and Mr Odinga, the two capable front-runners, both say they would happily serve under the other, but few believe either would do so.

Would a new president or a government of another stripe make a difference? Perhaps a bit. But it is remarkable how little debate there is about policy (let alone aid); it is nearly all about personality, patronage and tribal calculations. Ideology is out.

There are many brave and talented fighters for a better life for Kenyans, especially among Kenya's women. Witness Wangari Maathai, the environmentalist; Esther Passaris, a formidably feisty half-Kikuyu, half-Greek fund-raiser who, among other things, is bringing street-lighting to the crime-infested alleys of Kibera; Njoki Ndungu, the MP who fought to push the Sexual Offences Act through parliament; and Joy Mboya, a relation of one of Kenya's finest early leaders (tragically assassinated), who runs a vibrant arts and dance centre in the industrial area of Nairobi.

## Sachs of gold

In the rural areas, the prospects are often grimmest, as the population swells and landholdings shrink. But a stirring and original experiment is being conducted by the UN, in cahoots with Columbia University's Earth Institute and spearheaded by Jeffrey Sachs, to stimulate a clutch of Millennium villages as models for emulation elsewhere. The early results of Kenya's prototype village, in Sauri in western Kenya, where two-thirds of the people, Luos, live on less than $1 a day, are astonishing.

With an annual budget amounting to $50 a head administered by a UN team consisting mainly of bright young Kenyans, the Sauri villagers have apparently seen their rate of malaria go down from 43% to 11% (due to the provision of bednets), while school results have leapt (due partly to proper lunches). Maize production has soared five-fold (due mainly to fertilisers) and receipts for crop sales have steadied thanks to a cereals bank.

The big question is what happens after the projected five-year span of tutelage, when the overseers go away—not to mention the extra help from an American philanthropist, George Soros, and sundry Norwegian and Japanese donors. That fragile and rotten thing, the Kenyan state, will have to help sustain those dramatic improvements, by providing decent teachers, doctors and farm advisers—just what Kenyans have most lacked. Veterans of the aid world tend to doubt whether the locals, even with state help, will be able to keep Sauri successful. Yet it is just such initiatives that the Group of Eight rich countries, meeting this week in Germany, promised two years ago to pay for.

Some aid has helped Kenya; some has not. It has never been crucial to the country's prosperity. What Kenya needs most and has woefully lacked is a fairly clean, energetic government that mends the country's dreadful infrastructure, with help from abroad if need be, and then lets Kenya's many enterprising people get on without too much interference. It hasn't happened yet. One day, perhaps, it may.

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Guinea-Bissau

# Pushers' paradise

Jun 7th 2007 | BISSAU
From The Economist print edition

**The drugs trade in the continent's first narco-state is booming**

TAKE a long jagged coastline, a collapsed state, a collection of powerful politicians and soldiers keen to make a buck or more and you have a drug peddler's paradise. You also have Guinea-Bissau, a tiny former Portuguese colony on Africa's west coast that Latin American cocaine is pouring through, mostly en route to booming markets in Europe. The country has won the dubious honour of becoming Africa's drug-distribution hub and, some fear, its first narco-state.

Precise figures for a business as shady as drugs are hard to come by. But two fortuitous seizures of over 600 kilos of cocaine, worth over $30m each, during the past seven months alone give an idea of the scale of the problem.

Not that these seizures have stopped still more getting through. Drug-control officials say aircraft and boats laden with hundreds of millions of dollars' worth of cocaine still cross the Atlantic towards remote islands scattered off Guinea-Bissau's coast. A sophisticated logistics network allows the drugs to be dropped by air, dispatched to remote airstrips or ferried by speedboats far inland up winding mangrove-lined creeks where they are stored and prepared for their onward journey.

They sometimes go to expanding markets in the Middle East and Far East, but Europe remains the main destination. The drugs are taken there via a range of networks—overland, often in Lebanese-owned vehicles, by sea or by air. They are hidden in vehicles, people or goods. Once, they were even secreted in giant edible snails going from Ghana to Ireland.

Since a bitter war to oust its Portuguese rulers, Guinea-Bissau has suffered dictatorship, coups and, at the end of the 1990s, another war. Cashew nuts aside, it has few natural resources and, in a region where far bigger conflicts have grabbed the limelight, it is all but forgotten by the outside world. The street value of the recent cocaine seizures was each the equivalent of more than 10% of Guinea-Bissau's annual GDP, so the allure of the drugs trade is understandable.

The government has belatedly asked for outside help and has set up an anti-drugs commission to look into allegations of complicity by politicians and officials. Those who really do want to take on the Colombian cartels face stiff resistance, often from their own colleagues. The police unit responsible for

fighting the drug dealers is constantly impeded by other security services. In any case, there is seldom enough money or fuel to carry out raids; the police chief got his own car only after seizing one in a drugs raid. But he is anyway under intense pressure not to carry out any raids. Interference from top officials meant that the drugs seized in the country's biggest-ever bust last September have since disappeared and the two Colombians arrested have walked free.

The handful of brave local journalists who dare report on their country's role in the cocaine trade face increasing threats to shut them up. Your correspondent and a local colleague were hauled before the interior minister and threatened with prison after the local man wrote a report, picked up by Portuguese radio, airing allegations that the armed forces were dealing in cocaine. Plainly, soldiers are involved: some have been caught in the act. Drug experts say officers can earn up to $500,000 for securing a landing strip for deliveries.

Fearing how much cocaine is now moving around the region, America says it will step up its anti-drug presence there. The Europeans, meanwhile, are launching a Portugal-based anti-drugs task force. But the people of Guinea-Bissau are more worried that the lucrative business could fuel local violence, as factions vie for control of the precious white powder.

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Hunger

# Get the gangsters out of the food chain

Jun 7th 2007 | ADDIS ABABA AND NAIROBI
From The Economist print edition

**New commodities exchanges may help feed more of the starving**

THE UN's World Food Programme (WFP) feeds 90m people in the poor world, a fraction of the 800m it reckons still go hungry. Population growth, environmental degradation and bad governments are among those to blame. But a big factor is the failure of food markets in poor countries.

Take Ethiopia, notorious for its recurring famines, with 7m people still on food aid. It happens to be Africa's second biggest maize producer and a big wheat producer too. But then look at Addis Ababa's grimy grain market. Lorries arrive from Ethiopia's south and west, which have food surpluses, and leave for the north and east of the country, which is often famished. Illegal traders run a lucrative extortion racket, their bully boys jumping on the lorries as they arrive, threatening the driver and earning themselves $1.50 on every $20 sack of grain. That margin and other market failings add up to 20% to the cost of every sack.

Even in countries where gangsters and extortion are less common, crop markets rarely work well. Information, crucial to efficient trading, is scanty. But, thanks in part to technology, things are improving. Mobile phones help farmers find out about price discrepancies from which they might benefit. In some cases better market information has encouraged farmers to diversify their crops.

Now the WFP and others are launching the Ethiopian Commodities Exchange (ECEX), which is being promoted as a prototype for other poor countries. ECEX draws inspiration from Chicago's original board of trade. “In fact, conditions in modern Ethiopia are similar to those in 1848 Chicago,” says Eleni Gabre-Madhin, who is setting up the new exchange. She hopes for the first bell to ring in time for Ethiopia's wheat harvest in December.

As well as wheat, ECEX will deal in maize, teff (a local staple), coffee, pea-beans and sesame. It will also control the warehousing and inspection of goods. An electronic signature system, unknown in Ethiopia's backward banking scene, will settle transactions by the end of the day. A trading pit in a swish new building will be linked to trading floors in Ethiopia's regions and from there by mobile phone to traders in villages, chalking up prices on a board.

WFP is already one of the largest buyers of Ethiopian cereals and its new head, Josette Sheeran, a former American government official, thinks the new exchange will help it buy much more efficiently, perhaps even using futures. Market-minded donors are starting to think that commodities exchanges like ECEX could play a big role in reducing hunger across Africa.

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Palestine

# Not so glad to be gay

Jun 7th 2007 | JERUSALEM AND RAMALLAH
From The Economist print edition

**It is getting harder for gay Palestinians to seek refuge in Israel or abroad**

Reuters

ONE time, high heels and a wig saved Imad from prison. The 22-year-old from the West Bank capital, Ramallah, had been caught in Jerusalem without a permit. On the way to the jail, the police asked him and his friend why they had sneaked into town. As his friend shrivelled up with shame, Imad (not his real name) proudly told them he had come to perform at the Shushan, Jerusalem's only gay bar. He opened his bag and flourished his outfit with a bristle of sequins. The police, realising that they had caught a couple of drag queens instead of a couple of terrorists, let them go with a warning never to return. “And two days later,” recounts Imad with a gleam in his eye, “I was back, even in the same café where they arrested me.”

But getting back is becoming harder. Israel is rapidly filling in the remaining gaps in its West Bank wall-cum-fence. Recently it took Imad some seven hours to make the usual one-hour journey from Ramallah to Tel Aviv. Soon his drag career, which has rocketed at gay clubs all over Israel (see picture), will be cut short.

Gay Palestinians have long been sneaking into Israel to enjoy a freedom unknown in their own, much more conservative, society. And despite persistent rows such as whether to allow gay-pride marches in Jerusalem—legislators this week voted, on a first reading, to let the city ban them to avoid offending ultra-Orthodox Jews—Israel likes to promote its reputation for tolerance. Three years ago the Zionist Organisation of America imported some gay Palestinians, complete with disguises and fake names (or perhaps they were all the same man—it was hard to tell) for a pro-Israel college lecture tour. Israel's main gay-rights group, known as the Aguda, has been working quietly with the government and the tourist industry for three years to promote gay tourism—though a recent newspaper report about the campaign scared the tourism ministry into denying any such campaign.

But despite relatively progressive laws, says Yoav Sivan, a young Israeli gay activist, Israel's liberalism is more selective than its politicians make out. Over the past 12 years some 60 gay Palestinians have asked the Aguda for help getting asylum because their lives are in danger back home. Hardly a flood—but Israel has not granted one request. Nor will it give residence permits to those with steady Israeli partners, as it routinely does to its citizens' same-sex partners from other countries. At best, says the Aguda, it lets the Palestinians stay a while to seek refuge elsewhere.

Other states also show little sympathy. Only 20 of the 60 have won asylum abroad. The rest are in jail or living illegally in Israel, as are hundreds more who have not even sought asylum as it means losing any chance of returning home. Samir (not his real name either) has just run out of time on his latest three-month visa and risks rapid deportation if caught. But after eight years with his Israeli partner, he says, “I'm not going to leave now.”

Israel does give asylum to Palestinians whose lives are at risk—for collaborating with Israel's Shin Bet intelligence service. And sometimes the Shin Bet blackmails gay Palestinians into working for it by threatening to expose them—as does Palestinian intelligence, for that matter. So Palestinians known to be gay are invariably suspected of being collaborators too—which puts them in even greater danger.

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United Arab Emirates

# How to be Islamic in business

Jun 7th 2007 | DUBAI
From The Economist print edition

**Ensuring that financiers comply with sharia is becoming big business**

THERE are many ways to get rich in a boom town like Dubai—investing in property is the most obvious—but nowadays one of the most lucrative jobs in the Gulf's financial hub is that of *sharia* scholar. This Muslim legal expert gives *fatwas*, the final Islamic seal of approval, to financial instruments he deems "*sharia*-compliant" at a time when investment by Muslims (especially from the oil-rich Arabian peninsular) in global financial markets is soaring. Pious Muslims equate the charging of interest to usury, which is forbidden; they also shun investment in such areas as gambling, tobacco, drink and the arms trade.

Step forward Hussein Hamid Hassan, a 75-year-old Dubai resident, now probably the world's biggest figure in *fatwas* for Islamic finance. After an impoverished boyhood in an Egyptian village to degrees at New York University and al-Azhar in Cairo, he has gone on to advise the governments of Egypt, Kazakhstan, Kuwait, Libya and Pakistan on Islamic law. He chairs the *sharia* boards of at least 15 Islamic banks and financial institutions. His knowledge of common law and economics, as well as English and French, has helped. Above all, Mr Hassan is a pioneer and an innovator, working out new financial structures and helping to convert conventional banks to *sharia*-compliance. "I submit that in a few years all the Gulf states will move to an Islamic financial system," he says.

Mr Hassan's star has risen because Islamic financial institutions and the growing number of conventional banks getting into the game all now need a reputable *sharia* board to attract Muslim investors who, since September 11th, have moved away from conventional banking just when the oil boom has left them awash in cash. New financial instruments are proliferating, from fee-based Islamic credit cards to Islamic mortgages, whereby the bank buys the property, then sells it at a mark-up to the client through an instalment plan. (The Saudi banking system, it may be noted, is largely interest-based; some contest the whole notion of "Islamic finance" as a mere sleight of hand, with interest payments called "profit sharing" and interest charges "handling fees".)

The most significant of the new instruments is the Islamic bond, known in Arabic as a *sukuk*. In 2006 Dubai Ports World issued one to pay for its controversial purchase of P&O, a British-owned ports operator. Another *sukuk* was issued to help finance Nakheel, the Dubai-owned development company behind the man-made island projects off the shore of its home town. Both surpassed the $3 billion mark, breaking world records; and both shocked global markets by attracting a majority of investors from outside the Middle East. Both were approved by Mr Hassan.

Not just Muslims are taking notice. A Texas oil-and-gas firm issued the first American *sukuk* last year. "Islamic finance is becoming international," says Mr Hassan.

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Turkey and its army

# Military manoeuvres

Jun 7th 2007 | ANKARA AND ISTANBUL
From The Economist print edition

AFP

**The Turkish army continues to play a big role in the country's domestic and foreign politics—too big, say its critics**

Get article background

THIS week's flurry of stories about a purported Turkish invasion of northern Iraq confirmed again the special position the army has in Turkey. The reports turned out to be exaggerated, but troops and armour are massing on the border (see picture), and fears of a large-scale intrusion into Iraq remain (see article). For now, though, attention will revert to the army's part in domestic politics.

It is brought home over tea in Istanbul's posh Galata district by Tayfun Mater, a left-wing activist, as he describes being tortured after the coup in 1980. “The worst bit was when they hung me from the ceiling by the arms and applied electric shocks to my penis and testicles,” says Mr Mater, who spent five years in prison. By the time the army handed back power to the civilians in 1983, over half a million Turks had been put in prison; 50, including a 17-year-old boy, were executed.

Until recently most Turks believed the days of coups were over. But that belief was shattered late on April 27th, when a threat to intervene against Turkey's mildly Islamist government was posted on the general staff's website, touching off a political earthquake that still reverberates.

The “cyber coup” eventually led the prime minister, Recep Tayyip Erdogan, to call an early general election on July 22nd. Abdullah Gul, the foreign minister, had to withdraw his bid to replace President Ahmet Necdet Sezer, who was due to step down in May. Yet the polls suggest that Mr Erdogan's AK Party may return with even more than the 34% that, thanks to most other parties missing the 10% threshold for seats, catapulted it to sole power in 2002. What might the generals do then?

The question echoes around the Ankara cocktail circuit, but it raises a host of others. Was the ultimatum delivered under pressure from hot-headed junior officers threatening to take matters into their own hands? Does the army really believe that the AK government is steering Turkey away from Ataturk's revered secular republic towards religious rule? Was it all a crude stab at wrecking Turkey's chances of joining the European Union? And, again, will the army invade northern Iraq?

The diary of Ozden Ornek, a retired naval chief, leaked in late March to *Nokta*, a Turkish weekly, suggests several factors may have been involved. Excerpts include details of two separate planned coups concocted in 2004 that were quashed by the then chief of the general staff, Hilmi Ozkok. Conversations between the plotters show suspicions of both AK and General Ozkok. Indeed, his enthusiasm for democracy and the EU leads them to conclude that he is an “Islamist” too.

Mr Ornek insists the diary is fake and is suing *Nokta* for libel. But General Ozkok has hinted otherwise,

saying that the claims “needed to be investigated”. Meanwhile, military prosecutors have filed separate charges against Lale Sariibrahimoglu, a respected military analyst, for her comments to *Nokta* (which has since been closed down). She could spend two years in jail if convicted on charges of “insulting members of the military”.

The notion that “the army knows what is best for the people and that they cannot be trusted to govern themselves lies at the heart of their continued meddling in politics,” observes Umit Kardas, a retired military prosecutor. It was such thinking (drilled into young officers early on) that led the generals to enshrine a right to intervene in the regulations that they drafted for themselves in the 1980s.

The EU insists that any such right must be scrapped if Turkey is ever to join its club. So must the system of military courts, which shield soldiers from prosecution by civilians. The chief of the general staff should be answerable to the defence minister, not the other way round. Not surprisingly, the generals' feelings towards the EU are now mixed. Joining the EU would crown Ataturk's dream of cementing Turkey's place in the West. Yet they want this “only if it can be on their own terms—and that means retaining all their privileges,” according to Ali Bayramoglu, a long-time observer of the army.

Mr Erdogan became the first political leader to have trimmed the army's powers, when his government reduced the National Security Council (through which the army barks orders) to an advisory role. This and other dramatic reforms helped to persuade the EU to open membership talks with Turkey in 2005.

Fears that their influence might be watered down even more have transformed some generals into the EU's fiercest critics. None more so than Yasar Buyukanit, who took over from General Ozkok last year. His salvoes against creeping Islamisation are often accompanied by veiled claims that the EU is trying to dismember Turkey by supporting Kurds and other minorities.

The army's sense of vulnerability has been heightened by a deepening rift with America over Iraq. During the cold war, the generals (in charge of NATO's second-biggest army) were America's chief interlocutors, which bolstered their influence at home. Anti-American feelings exploded among Turks in 2003, when American soldiers arrested 11 Turkish special-force troops in northern Iraq, on suspicion of plotting to murder a Kurdish politician. Most Turks saw the move as punishment for Turkey's refusal earlier that year to let American troops cross its territory to open a second front in Iraq. Trust between the two armies has yet to be restored. Tuncer Kilinc, the last general to head the National Security Council, told an audience in London recently that Turkey should pull out of NATO and make friends with Russia, Iran, China and India instead.

The army's anti-Western stance resonates well with ordinary Turks, who are disgusted by America's behaviour in Iraq and by the EU's dithering over Turkish membership. The army is still rated as the country's most popular institution. To the millions of urban middle-class Turks who staged anti-government protests last month, the army remains the best guarantor of Ataturk's secular republic.

Yet, as Mr Ornek reportedly noted in his diary, the deliberate isolation of officers from civilian life has confined them to an artificial world in which civilians are “unpatriotic, lazy and venal” and the armed forces are “industrious, selfless and worthy”. As he then mused, “What can we achieve with such thoughts?” Yet if the army is to continue to command the affection of its citizens it needs to change with the times. The generals could not have missed the many placards during last month's protests that read “No to *sharia*, No to coups.” A drive to weed out corrupt officers launched under General Ozkok is an encouraging sign that the army is prepared to be more self-critical. But respecting the election result, no matter what it is, remains the biggest challenge of all.

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Turkey and northern Iraq

# To go or not to go

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From The Economist print edition

**The Turks ponder a cross-border incursion into northern Iraq**

Get article background

ON JUNE 6th a premature report of a big Turkish invasion of northern Iraq rocked markets. Certainly thousands of Turkish troops, backed by tanks and artillery, have massed for a possible offensive against Kurdish PKK rebels in Iraq. Martial law has been declared in three of Turkey's Kurdish provinces. This follows rising violence against soldiers in Turkey. On June 4th seven Turkish soldiers died when Kurdish rebels raided an outpost in the province of Tunceli. In May six civilians were killed by a suspected PKK suicide-bomber in Ankara.

All this increases the pressure on Turkey's prime minister, Recep Tayyip Erdogan, to strike the PKK in its mountain strongholds in Iraq. General Yasar Buyukanit, chief of the general staff, has called a putative cross-border incursion “necessary” and “useful”. Deniz Baykal, the main opposition leader, is in favour.

But the American defence secretary, Robert Gates, said this week that the United States was squarely opposed to unilateral Turkish action, which would destabilise the only calmish bit of Iraq. The Americans would prefer the Turks to use the Iraqi Kurds to help them make peace with the PKK. The PKK itself wants to draw more Turkish forces into Iraq (the Turks have kept some 1,000 soldiers there since an incursion in the 1990s) because, as a source suggests, “this could provoke armed confrontation between Turkey and America.” It would also upset the European Union.

A few days before this week's alleged invasion, two American fighter jets had strayed from Iraq into Turkish airspace. The Americans said this was an “accident”, but some Turks saw a warning that America might side with the Kurds against them. Yet most Americans acknowledge that their refusal to heed Turkish calls to attack the PKK is now the main cause of rampant anti-Americanism in Turkey. Catching a few PKK ringleaders could improve matters.

The Iraqi Kurds are unwilling to co-operate mainly because they see the PKK as a bargaining chip to get the Turks to recognise their quasi-independent status in Iraq. The Turks are against a referendum in Kirkuk this December that might lead it to join the Kurdish region.

Massoud Barzani, the Iraqi Kurdish leader, threatens trouble in Turkey's mostly Kurdish south-eastern provinces, where his popularity is now starting to rival that of the captured PKK leader, Abdullah Ocalan. Most Iraqi Kurds consider their quasi-independent state as the real target of any Turkish incursion. But after two decades of battle, some 16 cross-border incursions and 40,000 dead, Turkey's leaders, military and civilian alike, know that force alone cannot solve Turkey's Kurdish problem.

The generals may have another reason for sabre-rattling. By insisting on government approval to strike in Iraq, they are shifting the blame for the violence to the Americans and the Iraqi Kurds—and to Mr Erdogan. With each Turkish casualty Mr Erdogan risks losing nationalist votes. Yet if he orders a full invasion, Turkey may just get bogged down and face new enemies.

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Spain and ETA

# Basque troubles

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**A broken Basque peace process spells trouble for Spain's prime minister**

AFTER two of his worst weeks since coming to power in March 2004, José Luis Rodríguez Zapatero, Spain's prime minister, looks suddenly vulnerable. On May 27th his Socialists fell behind the opposition People's Party (PP) in local elections, notably in Madrid, where anti-Zapatero feeling runs high. Then on June 6th ETA, the Basque separatist movement, called off its 14-month ceasefire (already fractured when it killed two victims in a bombing at Madrid airport in December).

A general election is due in March; and, until now, the idea that Mr Zapatero might not win a second term was absurd. Since its defeat in 2004, the PP has seemed intent on self-destruction. Its apocalyptic rhetoric over everything from gay marriage to Catalan autonomy scared many centrist voters. But the PP has recently calmed down. In place of conspiracy theories linking ETA to the 2004 train bombings in Madrid, it now says it will trust the courts to decide. Talk of Spain being torn apart by devolution has subsided as judges consider whether the new Catalan autonomy charter breaches the constitution.

The PP has a new air of confidence. At the election in March 2004, the party's healthy lead in the opinion polls evaporated when it mishandled the aftermath of the Madrid train bombings. It has since trailed the Socialists in opinion polls. But the local elections brought its leader, Mariano Rajoy, his first country-wide victory: wafer-thin, with 35.6% of the vote against 34.9% for the Socialists, but still a win. For the past two decades, the winner of local elections has always won the subsequent general election.

Mr Zapatero is largely to blame for the Socialists' decline. He picked his former economic adviser, Miguel Sebastián, as candidate for mayor of Madrid; Mr Sebastián did disastrously. Socialist malcontents complain that the ETA peace process, another personal initiative, put off voters. Yet although many in the PP will rejoice both at Mr Zapatero's discomfort and at the demise of a peace process they hated, public glee might be counterproductive. Responsibility for calling off the ceasefire lies firmly with ETA, but Mr Rajoy's refusal to back the peace process, and his insistence on ETA's unconditional surrender, hampered negotiations.

ETA may be re-energised and is certainly rearmed (it stole 350 pistols from a French arms depot last October). How to deal with it will now be a big election issue. Some reckon that Spain's democratic parties need to recreate the anti-ETA alliance that fell apart at the end of the 1990s. But getting the powerful, moderate, Basque Nationalist Party to sit at the same table as the PP will be tricky: if violence starts up again, the PP may try to make political capital out of it, and the nationalists, who backed peace, will not want to risk the PP mocking their efforts.

With Spain's housing boom slowing and the constitutional court considering striking out bits of the Catalan charter, Mr Zapatero has little else going for him. If the court now trying 29 people accused of the Madrid train bombings does rule out other conspiracy theories, that could help him. But any more wrong moves in the next nine months, or a prolonged outbreak of ETA violence, could spell disaster in next year's general election.

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Belgium's election

# Buggins's turn

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**In a divided country, voters have little influence—and care even less**

WHY will so many Belgians bother to turn out in their general election on June 10th? The short answer is that they have no choice: they are legally obliged to vote on pain of fines (although spoiled ballots are allowed). Their democracy otherwise leaves precious little room for voters, thanks to a complex system of coalition government born of years of squabbling between the French- and Dutch-speaking halves of the kingdom. The rules for forming coalitions are so arcane, with complex monitoring of linguistic, ideological and regional balance, that one newspaper, *Le Soir*, has run a guide to explain it all in a mere 20 instalments.

Elections in Belgium are but a prelude to horse-trading (in 1988 it took almost 150 days to thrash out a coalition). On a few glorious occasions, voters seize the initiative by savagely kicking out a ruling party. But the results are usually less dramatic, so the real decisions are “not taken by the electorate”, admits Wilfried Martens, who served 12 years as prime minister. (One example: all parties are committed to exclude the far-right Vlaams Belang, even though it is the second-biggest party in Dutch-speaking Flanders.)

There is a chance that the election on June 10th will be of the savage variety. Polls show that voters in Flanders find the government of Guy Verhofstadt, a free-market type turned mushy centrist, incompetent. They are minded to eject him in favour of his rival, the Flemish premier, Yves Leterme, who comes from the mushy centre-right Christian Democrats. Mr Leterme is good at titillating Flemings who want less to do with French-speaking Wallonia. Last year he called the 176-year-old Belgian state an “accident of history”, so eroded as to amount to the king, the national football team and certain brands of beer.

This is divisive talk indeed. In a poll this week, almost 38% of Flemish voters said they wanted Mr Leterme as prime minister, more than backed any other candidate. Yet he won only 3.8% support in Wallonia, and just 5.1% in the (bilingual) capital, Brussels. Happily for him, national elections are nothing of the sort: the main political families split into Flemish and French-speaking parties years ago. Voting is by region, so Walloons can neither help nor hinder a Fleming's path to power.

The same is true in reverse for Wallonia. If it were a separate country, the local Socialist boss, Elio Di Rupo, would be frontrunner to be prime minister. But a mere 3.1% of Flemish voters say he is their ideal choice. A bow-tie-wearing dinosaur, Mr Di Rupo asserts that public spending—not capitalism—is the source of new jobs in Wallonia. He also once asked why work was so important, when it accounted for only a fifth of the lifetime of a person who reached 80.

Thanks to Belgian fudge and mudge, Mr Leterme's and Mr Di Rupo's parties could share power in the next government. In theory, both men have a shot at being the next prime minister. But Belgium has not had a French-speaking prime minister in three decades. So Mr Leterme looks by far the likeliest candidate—although one thing about horse-trading is that it can throw up a dark horse.

Mr Martens suggests that there should be national voting districts. Flemish voters could then punish Walloon politicians they dislike, and vice versa. Belgian democracy “works”, he insists, but with federal-level voting it would be “a lot healthier”. However, there is little enthusiasm for constitutional change, which requires a two-thirds majority in parliament.

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Russia's opposition

# Viktor the unvictorious

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**Viktor Gerashchenko, an implausible presidential candidate**

Get article background

THE Kremlin has no taste for spontaneous opposition. It could thus hardly wish for a better opponent than Viktor Gerashchenko, a sardonic former central banker. He is old, adaptable, unpopular and has little chance of uniting the opposition, let alone the country. Even in Moscow his rating is no more than 10%. Indeed, the Kremlin liked him so much that, in the 2004 election, it asked him to play the part of a challenger from the nationalist Rodina party to Vladimir Putin. “They felt they wanted someone respectable to stand against Putin,” he says.

This time the 69-year-old Mr Gerashchenko has volunteered himself as a joint candidate for the opposition. The reason, he claims, is that he can no longer stand the way that Mr Putin runs Russia. Even if he is old, he says, so was Charles de Gaulle. Yet his nomination testifies to the sad state of Russia's political opposition, which lacks unifying leaders and ideas. Other candidates include a former prime minister, Mikhail Kasyanov, whose rating is half that of Mr Gerashchenko's, and Vladimir Bukovsky, a Soviet dissident in Britain.

More significantly, Mr Gerashchenko's stance is a sign of growing alienation among the old Soviet elite from the Kremlin, which they feel has been hijacked by unprofessional security-service officers. Mr Gerashchenko was the cream of the Soviet bureaucracy. His father was a leading banker and Mr Gerashchenko was posted to London to the first Soviet foreign bank at only 28. Two years later, he moved to Beirut (he is said to be highly respected by the KGB elite).

As head of the central bank under Russia's first post-Soviet president, Boris Yeltsin, he handed out cheap credits to weak Russian banks, leading to high inflation and winning him the sobriquet “the worst central banker in the world” from Jeffrey Sachs, an American economist. His most recent incarnation was as chairman of Yukos, a now dismantled oil company, whose founder is in a Russian jail: “I was supposed to be a go-between for the Kremlin and Mikhail Khodorkovsky,” he says.

Nor did Mr Gerashchenko mince words when he summed up, on air, the fate of Yukos: “The fuckers nicked it.” His office was raided by prosecutors, who left empty-handed. His biggest issue with the Kremlin is not war in Chechnya, foreign policy or even freedom of speech; it is the inefficiency, endemic stealing and lack of professionalism of top bureaucrats. “The infrastructure is in a terrible state, most people in Russia live extremely poorly; there is no competition in some sectors, which means high inflation. Given the conditions, we could live a lot better.”

What upsets him and his peers most is Mr Putin's “cadres policy”. For all its rigidity, the Soviet Union offered some social mobility and a way for bright, politically ambitious or well-connected people from the provinces to rise to the top. The system needed and promoted professionals, says Mr Gerashchenko. But Mr Putin's entourage is made up mainly of people who “went to the same school or played in the same courtyard”, he adds. His views may not appeal to ordinary Russians, but they will to those among the elite who failed to play in the same sandpit as Mr Putin.

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Serbia and Kosovo

# Crimes and misdemeanours

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From The Economist print edition

**Serbia tries to please the European Union—but Kosovo still waits**

Get article background

FOR months, diplomats said that this would be the week when Russia's Vladimir Putin and America's George Bush struck a deal: not about Kyoto, but about Kosovo. The hope was that Mr Putin would assent to Kosovo's independence in exchange for a concession elsewhere. Yet this is clearly not now going to happen.

Kosovo is still technically part of Serbia, though it has been run by the United Nations since 1999. Some 90% of its 2m people are ethnic Albanians who want independence. A plan drawn up for theUN by a former Finnish president, Martti Ahtisaari, proposes this with minor constraints, but also gives concessions to Kosovo's Serbian minority. The problem is that, without Serbian agreement, Russia will remain opposed to the Ahtisaari plan—and seems ready to veto it at the UN Security Council.

American diplomats have hinted that, if this happens, they might encourage the Kosovo Albanians to declare independence anyway, and then recognise their new state unilaterally. This may still be the plan, but it will meet resistance from the European Union. The Ahtisaari plan proposes to replace the UN structure in Kosovo with an EU one and an international governor, as in Bosnia. But without a UN resolution, such a change may not be legal.

That is why some diplomats now reason that it would be better to postpone the whole issue until September. But since September is even closer to Russia's parliamentary election (in December) and presidential one (next March), there seems no good reason to expect the Russians to change their minds. At least the talk of postponement is not yet stirring trouble in Kosovo. Far from reaching for their guns, says Visar Reka, erstwhile spokesman of the guerrilla Kosovo Liberation Army, those who might be tempted to return to war are, for now, happy to wait.

This will obviously come as a relief not only to Western diplomats, but to the Serbs. If fighting broke out again in Kosovo, its Serbs would surely be among the first victims. Besides, Serbia's new government has its own EU ambitions to attend to. On these, it has played a shrewd game. In May 2006 the EU suspended talks with Serbia on a stabilisation and association agreement, widely seen as a first step towards membership, because of its failure to co-operate with the Yugoslav war-crimes tribunal in The Hague. But now talks with the EU are about to resume, boosted not just by the new government but also by its arrest on May 31st of Zdravko Tolimir, one of six Serb war-crimes suspects who were still at large.

Mr Tolimir, who is charged with genocide, was living in a flat in Belgrade. After the decision to arrest him, police piled into his flat and bundled him out in a body-bag, according to some reports, and then spirited him to the Serb part of Bosnia, where he was officially arrested. This way Serbia's prime minister, Vojislav Kostunica, who dislikes the tribunal, appears not to have betrayed his principles.

EU officials insist that talks with Serbia cannot be completed without the arrest of General Ratko Mladic, Mr Tolimir's wartime superior. Whether that happens remains to be seen—Carla Del Ponte, chief prosecutor at the Hague tribunal, now speaks of its being done within weeks. If Mr Kostunica wanted to weaken EU resolve over Kosovo, he would do well to arrest the general. Those against Kosovo's independence might then argue that even a co-operative Serbia was being punished. The trouble is that if Kosovo loses any prospect of independence, war and instability could return. Politics in the Balkans, as elsewhere, is about hard choices.

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Charlemagne

# The think-tanks that miss the target

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**Brussels badly needs a far more open debate about ideas**

Peter Schrank

FOR a place that revolves around a big, radical idea—the “ever closer union” of Europe—Brussels is oddly bad at big, radical thinking. It is a (rare) point on which Eurosceptics and pro-Europeans agree: given the importance of decisions taken by the European Union, both the level and quality of public debate in the EU capital are depressingly low.

To Eurosceptics, the explanation is simple: the debate is as artificial as the European project itself. Too many Brussels think-tanks accept large chunks of their funding from EU institutions and national governments. Others depend on big corporate sponsors, so that the lines between research and lobbying become queasily blurred. Both forms of dependence are worsened by competition for the same pool of what Brussels considers star speakers: European commissioners, top officials and a few senior members of the European Parliament. Nobody seems able to change the default formula for Brussels policy seminars: good coffee and croissants, dull speeches and a brief exchange of conventional wisdom. The painful comparison is with Washington, DC, where the best think-tanks refuse public money, compete to set the agenda with provocative ideas, and enjoy extraordinary access to administration and Congress alike.

Pro-Europeans also fret about the lack of lively debate in Brussels (oddly, it is often livelier among the think-tanks in London). But they believe one answer is to spend more EU cash. Later this month Margot Wallstrom, the commissioner charged with selling the EU to its citizens, will unveil plans to fund new pan-European foundations, aimed at stimulating more “political” discussion of EU issues. Rather like the grand research foundations attached to German parties, these new groups would be explicitly linked to the ten European political parties conjured into life under the 1992 Maastricht treaty. Few ordinary voters have heard of even the biggest of these: the Party of European Socialists and the European People's Party (which despite its Che Guevara-style name is actually made up of rather stolid Christian Democrats).

Mrs Wallstrom is on to something with her push for a more political debate. You can quibble about the use of public funding for party-political activities. But Brussels does need to become more partisan. Any number of promising binary debates can inspire the rival camps to fierce passions: think of immigration, the merits of free trade or whether to talk to Hamas. The trouble is that the Brussels discussion of such matters takes place either behind closed doors, in exchanges between ministers and officials, or off the record. Luring arguments into the open is hard, because Brussels is a place where the same folk must deal with each other for years, haggling their way towards policy deals. The public demolition of somebody else's ideas is rarely a way to win friends. Yet, as Mrs Wallstrom notes, politics becomes interesting only when competing ideas are visible to voters. “Most of the time, this is a compromise machine,” she sighs.

Even so, her solution has flaws. Fledgling pan-European political parties are imperfect vehicles for pushing forward debate, with or without foundations bolted on. They are small: even the biggest have fewer than two dozen support staff. They are also broad churches that rarely match up with binary debates. And there are pronounced national differences within them. Swedish Socialists are more committed to free trade than are nominally centre-right politicians from southern Europe. When it comes to defending farm subsidies, you will struggle to find much difference between a French Socialist and a French conservative.

The German models for the new bodies, such as the Konrad Adenauer or Friedrich Ebert Foundations, are too stately to stir up arguments of the sort needed in Brussels, although the big German foundations have a good record of promoting democracy in other countries. Javier Solana, the EU's foreign-policy boss, remembers the lifeline offered by the Friedrich Ebert Foundation when he was an underground Socialist in Franco's Spain.

## The case for debate

Johan Norberg, a Swedish free marketeer, recently quit a Brussels think-tank to join the Cato Institute, a libertarian outfit based in Washington. Too many think-tanks spend their time offering straight commentary on the Brussels machine, he says. In Washington think-tanks thrive not by reacting to the usual political process, but by supplying it with “the next big idea”. In Brussels analysts are sometimes said to be too outspoken, Mr Norberg marvels. “In Washington, if you're not outspoken, people will not listen to you.”

Brussels think-tanks also suffer from several structural disadvantages that are hardly their fault. Americans can pass entire careers rotating between political jobs in government and in the private sector. It has been worth listening to people at think-tanks in Washington because they may soon be putting their ideas into action in the White House or the Pentagon. In contrast, EU mandarins who leave for the outside world seldom return. Donations to American think-tanks are also tax-deductible. That is not true in Brussels: indeed, many wealthy Europeans, if asked for money, retort that they already do their civic duty by paying eye-watering taxes, says one European think-tank veteran. Big money is coming, though. Things may be stirred up by the new European Council on Foreign Relations, a think-tank promoting the EU as a model for international relations, with hefty funding from George Soros, the hedge-fund tycoon, among others.

It should not take a philanthropist's millions to get Europeans thinking. Brussels is already home to intense political debate—how could it be otherwise, when the foundations of the European project were so radical?—but the need for consensus has kept the debate largely hidden so far. Bringing it into the open might be provocative. Still, for an EU desperate to engage the interest of its citizens, it might be a good idea.

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Fighting terrorism

# Under suspicion

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Rex Features

**Being tough means defending liberty too. How brave is the next prime minister?**

GORDON BROWN has jostled his way to the brink of power without revealing much of what he intends to do when he succeeds Tony Blair on June 27th. Dubbed the “prime minister unelect” by John Major, his predecessor but one, Mr Brown has faced not even an internal Labour Party leadership contest, which has allowed him to be extra-modest about his big ideas. Britons are left to pick through his speeches for clues as to how they will be governed.

On June 3rd Mr Brown decided to drop a few hints about his strategy for fighting terrorism. As is now traditional, the policies were announced in briefings to Sunday newspapers, and were low on detail. If this was frustrating for the public, it was perhaps even more so for John Reid, the home secretary, who was left bringing up the rear when he presented proposals four days later for the government's fifth counter-terrorism bill in seven years.

The most controversial of the new proposals is to extend the period for which suspected terrorists may be detained for questioning before being charged with an offence. This is hot political territory, still smouldering from the government's attempt to increase the limit in 2005. Mr Blair's efforts then to extend the 14-day period to 90 days led to his first defeat in the House of Commons and ended in the 28-day compromise that Mr Brown and Mr Reid now propose to revisit.

The argument at the time was that terrorism cases take longer than others to solve. Police have to intervene earlier (since swooping at the last second is too risky), and gathering evidence is slower (since it often requires co-operation with foreign police and the decoding of encrypted computer files). MPs did not buy this in 2005, and both the main opposition parties still say they will not back an extension unless the evidence for doing so improves dramatically. This is a problem for Mr Reid, who promised in April not to tinker with the 28-day limit without their support and has yet to produce new arguments to persuade them.

One way forward might be to allow a judge to approve weekly extensions on a case-by-case basis. Even if it is not necessary at present to hold a suspect for longer than 28 days, there are circumstances in which it could be, police say. This rings a bell. The alleged plot to blow up ten transatlantic flights last summer was the sort of international conspiracy that police used to say would take them longer than 28 days to crack. But crack it they did.

Everyone—not least a journalist—longs for extended deadlines. But there are other ways to get hard jobs done. One is to devote more resources to them: more code-breakers to crack those hard disks, for example. Mr Brown has identified two more. One idea, which will be reflected in the new bill and is backed by some civil libertarians, is to let police carry on quizzing suspects after they have been charged, which

ought to reduce the need for long detention on suspicion alone. Suspects might be brow-beaten into confession by prolonged questioning. But both main opposition parties agree that, with proper judicial oversight, post-charge questioning is better than long pre-charge detention.

Similarly, Mr Brown's promise to review the use of “intercept” evidence, such as bugged phone calls and trapped e-mails, might make it easier to bring cases to trial in good time. Most Western countries do allow such evidence, and Britain's security services harvest tons of it. The reluctance to use it stems partly from the fear of exposing their shadowy methods and imperilling agents. There are also awkward technical points about disclosure: defendants could ask to see the entire transcript of a phone call, for example, even if some of it was sensitive.

If Mr Brown persists, the prize could be an end to the poisonous situation that now prevails. Some individuals are known by the authorities to be dangerous but cannot be tried for lack of admissible evidence. This frustration is behind recent innovations such as control orders, which impose light (and easily breached) restrictions on those who cannot be dealt with properly in court. Allowing more evidence to be used in court should banish the need for such unjust quick fixes.

The danger is that new measures will be used as complements, not alternatives, to repression. A leaked plan to let police stop and question people in the street shows that some in the Home Office still lack the light touch (though that scheme appears shelved for now). Plans to make terrorism an aggravating factor in sentencing are fine in principle but will need tight definitions to avoid abuse. The same goes for a proposed sex offenders-style register for terrorists released from prison.

There is hope. Mr Brown says he favours stronger parliamentary oversight, something that Mr Blair seldom seemed concerned about. But Mr Blair's long leave-taking has been accompanied by what he himself describes as “lurching into total frankness”: in the past couple of months he has blamed gun crime on black culture, for example, and said it is a mistake to put the civil liberties of terrorist suspects first. Mr Brown may be less authoritarian than his predecessor—or just less plain-spoken.

The “prime minister unelect” has yet to win the public's approval. He is anxious to out-tough the Tories on security; civil liberty is less popular with voters than it is among MPs. In 2005, when Mr Blair's anti-terrorist proposals were crushed by Parliament, a Populus poll for the *Times* showed popular support for 90-day detention running at 64%, with backing highest among Labour voters. When Mr Brown says he cares about democracy, these may be the sort of numbers he cares about most.

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BAE and Saudi Arabia

# The plot thickens

Jun 7th 2007
From The Economist print edition

**A Saudi prince, some fighter jets and more allegations**

AFP

**In the eye of the storm**

WHEN Britain's Serious Fraud Office (SFO) dropped its investigation into the Al Yamamah arms deal with Saudi Arabia in December, suspicions of foul play abounded. Tony Blair said the investigation had been halted because it threatened to harm relations with the kingdom, a key ally in the fight against terrorism and a partner in the Middle East peace process. The government also worried about the effect of the investigation on British jobs. All went quiet until June 6th, when the BBC and the *Guardian* published allegations that the British government and BAE Systems, a defence contractor, had acted as a conduit for payments of Saudi money totalling more than £1 billion ($2 billion) to Prince Bandar bin Sultan, a former Saudi ambassador to America. If true, the government was more than merely pusillanimous when it dropped the investigation.

According to the *Guardian*, BAE drew the money from an account at the Bank of England, where it was deposited as part of a deal in which Saudi oil was sold in return for Tornado aircraft and various arms. The BBC and the *Guardian* both allege that regular payments were made to Prince Bandar over a period of about ten years. The BBC reported that the money was deposited in Saudi embassy accounts in Washington, DC, where some of it was used to pay the running costs of the prince's private Airbus. Both organisations report that Prince Bandar and Britain's Ministry of Defence declined to comment. BAE Systems says it did nothing improper.

The Al Yamamah deal was signed in 1985, when Margaret Thatcher was in power. Investigations into the deal have been launched from time to time, but have never got very far. In 1992 the National Audit Office, a government watchdog, had its report into the deal suppressed for similar reasons to those that scuppered the SFO. The chairman of the Public Accounts Committee in the House of Commons at the time, Robert (now Lord) Sheldon, who saw the results of the investigation, said that it showed the government had behaved properly. Yet speculation lingered. It gained more momentum when Charles (now Lord) Powell, private secretary to Lady Thatcher when she was prime minister, became an adviser to BAE's chairman.

Prince Bandar, who served as the Saudi ambassador to America for more than 20 years, brokered the deal. He and his father, Crown Prince Sultan bin Abdul-Aziz, the longstanding Saudi defence minister, have been at the centre of all of Saudi Arabia's recent arms deals. Prince Bandar has been particularly close to both Presidents Bush. He was recalled from Washington in 2005, perhaps partly as an offering to anti-Saudi feeling in America in the wake of the September 11th attacks (Prince Bandar arranged a flight out of the country for some of his compatriots shortly after the twin towers were attacked, when other planes were grounded.) There are reports that Prince Bandar is now involved in a power struggle in Riyadh with Prince Turki bin Faisal, a more recent former Saudi ambassador to Washington.

If the allegations turn out to be true, attention in Britain will turn to who knew what and when. Payments made after 1998, when Britain ratified an OECD convention against bribing foreign officials, would be embarrassing for Mr Blair's government. Even worse would be handouts after 2001, when a law enshrining the convention was passed. Early this year the OECD declared itself disappointed with the feebleness of Britain's law and the lack of political will to prosecute offenders.

Sources say that such unorthodox arrangements were terminated in more recent contracts. But for Mr Blair, the BBC and *Guardian* stories raise the possibility that his final weeks in office will be overshadowed by not one but two investigations into corruption, which is not how he envisaged his exit from the world stage.

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Health-service finances

# On the mend

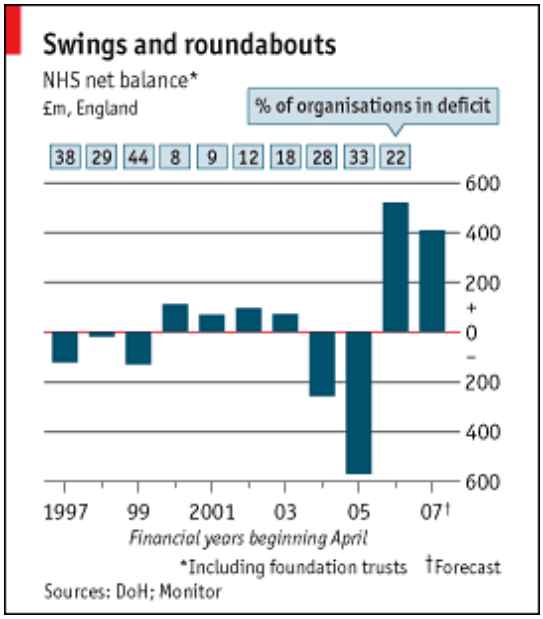
Jun 7th 2007
From The Economist print edition

**The gloom is lightening**

THE National Health Service, admired in much of the world, should be Labour's trump card in British politics. The government has boosted its resources at a record rate, and long waiting times for elective surgery have become a thing of the past. Yet, remarkably, most Britons think that the NHS has got worse rather than better under Labour.

One reason is the mismanagement of the health service's finances. With so much money pouring into the tax-funded NHS, the emergence of any deficit at all would have been a black mark. Yet a shortfall did emerge and—worse—got bigger. It more than doubled between 2004-05 and 2005-06, when it reached £570m ($1.0 billion) in England.

This week, however, Patricia Hewitt, the beleaguered health secretary, had something to smile about for a change, for the health service's finances improved markedly in 2006-07. Not only did it repay those earlier deficits, but it also chalked up a surprisingly large surplus of over £500m. It expects to have almost as big a surplus in the current financial year, which started in April (see chart).




Yet the NHS is not out of the sick-bay. Budgets for vital activities such as training were raided to shore up finances overall. And many bits of the health service are still ailing. The turnaround owes more to bigger surpluses than to smaller deficits, which fell from £1.3 billion in 2005-06 to only £900m in 2006-07. A fifth of all NHS organisations ran a shortfall, though that is down from a third in 2005-06.

The government may have regained a financial grip over the wayward NHS, but it has mainly itself to blame for losing it in the first place. Overgenerous pay awards contributed to the financial pressures. Hospital trusts went on a hiring spree because ministers insisted on driving down waiting times in the run-up to the general election in 2005. Traditional financial concerns played second fiddle to complying with top-down performance targets.

Now the NHS has to meet the most ambitious target of all. In 2004 ministers decided that patients should have to wait no more than 18 weeks from their initial referral by a family doctor until their actual operation in hospital. Figures published on June 7th, however, showed that this target is being met for only 48% of patients. The deadline for achieving the objective—the end of 2008—is now getting uncomfortably close.

Once again the NHS will face a clash of political priorities. But whereas finances came second to waiting times before, this time there will be no loosening of the reins. Politically, Labour cannot afford to lose financial control again, not least since the long years of taxpayer largesse for public services are due to end in the spring of 2008. Real funding increases, which have been running at 7% a year, will come down with a bump, although the exact scale of the slowdown will not be revealed until later this year.

The way to resolve this clash is to boost efficiency, and there are some encouraging signs that this is happening. Foundation trusts—hospitals with greater financial freedom—made efficiency gains of 3% in 2006-07. There is clear scope for the NHS as a whole to become more productive—for example, by reducing the length of hospital stays still further.

The return of the NHS to a sounder financial footing gives the government a chance of gaining some political capital for its stewardship of the health service. Yet it is far from certain that the public will be willing to give Labour any credit at all for what it has done, especially while doctors and nurses remain so disenchanted.

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**Bollywood comes to Yorkshire**

# Indian takeaway

Jun 7th 2007
From The Economist print edition

**Britain is Indian cinema's favourite backdrop—and biggest foreign market**

CANNES, Sundance, Venice—and now Castleford. This weekend the former mining town plays film-festival host, as India's "Bollywood" industry decamps to Yorkshire for the annual Oscar-style awards that are watched on television by some 500m people around the world. The county pipped New York, Barcelona and Sydney thanks to its rolling countryside, organisers boast. Castleford will kick off proceedings before the action moves to Sheffield. The highlight may well be a bizarre cricketing clash that will see Ed Balls, the economic secretary to the Treasury, bowl his worst against a team of Bollywood heart-throbs.

PA

**The stuff of dreams**

The biggest names in Indian film will be there, including Amitabh Bachchan to inaugurate the match and Shilpa Shetty to preside over the opening coin-toss. Yet one of the most recognisable Bollywood stars is Britain itself. Some 20 Indian movies a year are partly filmed on British soil, usually around London but sometimes as far afield as the Scottish Highlands, which occasionally doubles as Kashmir when the real thing is too dicey. This has contributed to a rush of Indian tourists, who now outnumber Japanese. Tourist boards distribute maps of film locations, and Madame Tussaud's waxworks museum has knocked up a set of Bollywood likenesses.

Overseas filming has been a Bollywood staple since the 1970s, when any respectable flick included an Alpine frolicking sequence. But these days foreign storylines also go down well with international viewers—especially in Britain, the biggest Bollywood market outside India. The spread of multiplex cinemas, which can show niche films thanks to their large number of smallish screens, has helped business. The top-grossing Bollywood film in Britain last year, "Kabhi Alvida Naa Kehna" ("Never Say Goodbye"), was shown on 60 screens; the top film of 1998 only made it to 20.

Britain's 2.6m Asians provide the core of the audience, but there are signs that other Britons are getting into Bollywood too. Sabbas Joseph, a director of India's film academy, says that about a quarter of the fans at premieres in Britain are non-Asian, a pattern he says has emerged in the past decade. Raj and Pablo, a double act who present the weekly "Love Bollywood" show on BBC radio's Asian Network, reckon a third of their listeners are non-Asian too.

Courting Westerners (and young Asians) has not diluted the Bollywood formula much. "It's an acquired taste. Even the modern ones usually feature song and dance, no kissing and are three hours long," says Helen O'Hara of *Empire*, a mainstream film magazine. Instead of changing its style, Bollywood is upping the production values. "Dhoom 2", last year's big action blockbuster, is as slick as most American efforts.

But raunchiness is creeping in too. Two leading actors are fighting an obscenity case lodged against them in India for an on-screen kiss. Amusing to Western viewers—yet Britain is to blame, argue Raj and Pablo,

since this primness is inherited from Imperial days. They make a persuasive point: “Which country invented the ‘Kama Sutra’?”

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Conservatives and grammar schools

# A test failed

Jun 7th 2007
From The Economist print edition

**An uncalculated insult sparks a row over how to educate clever children**

Get article background

IT WAS John Stuart Mill who christened the Tories the “stupidest party”: the natural home of landowners and all those suspicious of change could not, he thought, be anything else. Although the sobriquet has stuck, Tories in fact have a fond attachment to schools that educate only children of demonstrable intelligence. Grammar schools—state schools for pupils who do well on a test of academic aptitude at 11—appeal to the aspirational types that modern Conservatives like to think they represent. The schools also attract those sceptical of leftist notions about the mutability and perfectibility of human nature.

Now the nostalgics and meritocrats who applauded the party's commitment to grammar schools throughout the wilderness years since the Tories were booted out in 1997 have been rudely awakened. On May 16th David Willetts, the Conservatives' education spokesman, gave a speech in which he said that grammar schools no longer promoted social mobility by offering poor children with brains the chance of a first-class education. Once in power, he said, the Tories would press ahead with Labour's agenda for reforming education rather than open any more of them.

The ensuing row has convulsed the party. Graham Brady, the Tories' Europe spokesman, resigned his job over the issue (his constituency is home to four grammar schools). Dominic Grieve, the shadow attorney general, provoked a U-turn when he asked if Buckinghamshire, one of the few counties that still has grammar schools, could open a new one. (Yes, said Mr Willetts, possibly improvising, if local population growth demands it.)

The appearance of disunity, drift and lack of leadership has weakened David Cameron, the party's leader. A poll for the *Sunday Times* found that since October the proportion of voters who think he is strong has fallen from 44% to 37%, and of those believing he has what it takes to be a good prime minister from 42% to 33%.

On June 5th Mr Cameron tried to draw a line under the matter, saying that he was “not going to flinch” from the path he had chosen. But the row rumbles on. On June 6th the Cornerstone group of 40 right-wing Tory MPs published a pamphlet on school choice, which pointedly included a defence of academic selection. Labour MPs are delighted. “It was always obvious that Cameron would run into problems,” chortles one backbencher. “Grammar schools were a bonus. Just wait until the Tories realise Cameron doesn't mean what he has said about supporting marriage.”

It is now apparent that while Mr Cameron was busy moving his party closer to the centre—the task it elected him for—its members were not paying attention. He made it clear when he was campaigning for the leadership 20 months ago that he would not open more grammar schools, and styled himself the true “heir to Blair”.

What did surprise even those who had been keeping up with Mr Cameron's long march towards the centre was the wholesale assault on England's remaining 164 grammar schools. They have become the preserve of the middle classes, Mr Willetts thundered: only 2% of English grammar-school pupils are poor enough to qualify for free school meals, although poor children account for 15% of the school-aged population. Tory MPs with grammars in their constituencies were given no warning that their spokesman was about to criticise schools that local voters hold dear.

This startling provocation cannot be explained away as a necessary appeal to the electorate over the heads of the parliamentary party. Mr Willetts's complaint that well-off parents are coaching their children for the 11-plus exam does not resonate with potential Tory voters, who are often the sort of folk who think such initiative is laudable. They also tend to dislike schemes aimed at making each school socially representative. Mr Willetts also suggested that some schools might be allowed to select by ethnicity in

order to balance their intake.

In endorsing this criticism of grammar schools, Mr Cameron may find he has made a serious unforced error. Those MPs on his own benches who went to grammar schools are proud of what they believe is proof that they succeeded on merit. In the country as a whole it is private schools—particularly the poshest ones such as Eton, where Mr Cameron and many of his closest colleagues were educated—that are seen as the real bastions of privilege. Grammar schools may not admit many very poor children, but most of their pupils come from families not rich enough to afford private schooling. Mr Cameron may just have turned his patrician background into an election issue.

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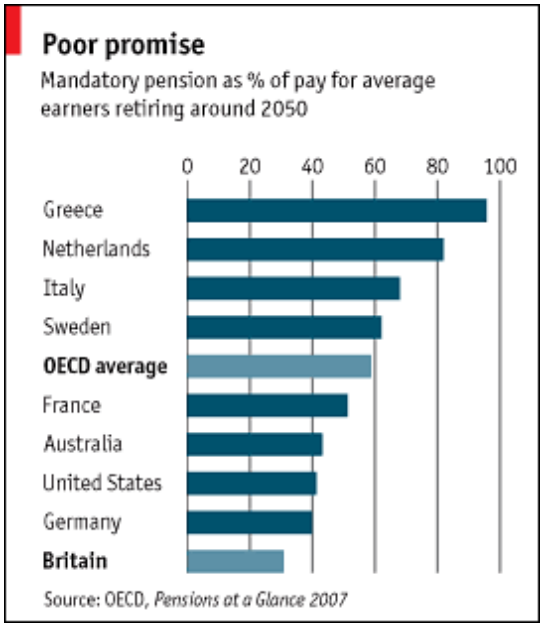
Pension prospects

# Saving the day

Jun 7th 2007
From The Economist print edition

**Young workers will be poor when they retire unless they save more**

Get article background




BRITAIN'S state-pension system is known to be tight-fisted. Just how stingy it is emerges from a report this week from the OECD: the promise made to today's young workers is the least generous in the developed world.

Monika Queisser and Edward Whitehouse, the report's authors, estimate what those who are young today will get from the state and compulsory private-pension schemes when they hang up their boots in 2050 or thereabouts. Average earners in Britain can expect a pension worth just 31% of what they are earning before they retire, compared with 41% in America, 68% in Italy and 96% in Greece. The average across all 30 OECD countries is 59% (see chart).

This is an inter-generational game where neither a low nor a top score is cause to celebrate. Greece's pension promise is too good to be true, since it would impose an unbearable burden on future taxpayers. Britain's may look affordable but it is politically unsustainable, since it would consign future pensioners to an unacceptably low standard of living if they were to rely upon the state.

The report underlines why reforms now going through Britain's Parliament are essential. The age when people become eligible to receive state pensions will rise from 65 in the early 2020s to 68 by the mid-2040s. And the basic state pension will be re-linked in 2012 to earnings, which increase faster than prices. The OECD's calculations assume the second reform is already in place, but not the first.

Another change is also vital if young workers are to look forward to a decent retirement, for many of the corporate final-salary pension schemes, which did much to make up for the inadequacies of the state system, are now closed to new members. The government wants to introduce, also in 2012, a new system of personal retirement-saving accounts.

The idea is to enrol in these new accounts most employees who are not already members of a pension plan in which the employer contributes at least 3% of a worker's pay. Around 10m people, mainly low-to-moderate earners, are likely to fall into this category. Although they will be enrolled automatically, they are free to leave the scheme if they choose. Employers will contribute 3% of a worker's eligible earnings (now £5,000-£35,000) and employees 4%. Tax relief will add another 1%, making a total contribution rate of 8%. The government put its proposals out for consultation in December and is due to respond to comments next week.

The OECD's calculations suggest that the new accounts could do the trick. With a total contribution rate of 7% on all pay, an average earner's pension would rise from 31% of pre-retirement pay to the OECD mean of 59%. But this encouraging finding assumes that workers contribute throughout their 45-year careers. If they started ten years later—at 30 rather than 20—they would need to save nearly 10% of their pay. The government's own forecasts, which take likely interruptions into account by assuming continuous saving from age 30, suggest that the new accounts will give median earners a pension worth around 45% of their pay before retirement.

Britain, with New Zealand, is breaking new ground in introducing a retirement-saving plan using the device of automatic enrolment. The reform dodges the thorn of compulsion by nudging people towards the

desired course of action. The OECD research suggests that there will have to be a lot of successful nudging, however, if young workers are to have a hope of securing a reasonable pension.

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Royal Festival Hall

# Fit for purpose

Jun 7th 2007
From The Economist print edition

**After two years and a pricey face-lift, the hall is restored to its former glory**

THE first major public building to be erected after the second world war, the Royal Festival Hall was the centrepiece of the 1951 Festival of Britain and is its only surviving monument. Sitting pretty on 21 acres on the south bank of the Thames, it quickly became a symbol of all that was good about Attlee's post-war Britain. Modern, stylish and egalitarian, it served up culture cheaply and cheerfully to as many people as possible. Alongside the world's great classical musicians, the likes of Ella Fitzgerald, Bob Dylan, Jimi Hendrix and Louis Armstrong made early appearances in its “eggbox” auditorium. Despite its notoriously poor acoustics, the hall assumed a seemingly permanent place in the public affection.

But within a decade the building had fallen into disrepair. Basic maintenance works and badly judged structural realignment in the 1960s did little to halt its decline, and although a big refurbishment was mooted in the early 1990s, it was stalled by managers' wrangling.

The impasse was broken only in 2002, when Michael Lynch, the head of the Sydney Opera House, was recruited as chief executive of the Southbank Centre, which runs the Royal Festival Hall. Though he knew he was inheriting a building that was reaching the end of its useful life, Mr Lynch says he was shocked by its deplorable state. “Despite being in the world's best location, it was losing its competitive advantage,” he says, leaning back in a 1950s-style chair—just one element in a faithful recreation of the original modernist aesthetic. “The hall was still much loved by the public, but it had deteriorated in look and feel and was in danger of losing its international standing.”

There seems little danger of that now. A £111m makeover, partly funded by the Arts Council and the National Lottery, has attended to every surface and feature, and the Festival Hall opens its doors on June 8th. The “overture” weekend involves 18,000 performers—4,000 of them schoolchildren—in 120 events. True to the hall's democratic principles, tickets will be free.

The building vibrates with sound and life. After expert tinkering by Larry Kirkegaard, an American acoustician, the concert hall's once-carpety sound is now crystal-clear. Public space around it has increased by 35% since Allies and Morrison, a firm of architects, shifted administrative offices into converted disused railway arches next door. New cafés, shops and restaurants along the riverside liven up a former gastronomic wasteland and attract younger audiences. They also funnel money back into the Southbank Centre to help pay for its operating costs and to secure matched funding from the government.

With four resident classical orchestras and an artistic programme that embraces opera, dance, rock, pop, jazz, poetry and literature, the Royal Festival Hall is once again something to be proud of. “As we'd say in Australia,” concludes Mr Lynch, “nobody else comes within a cooee of us.”

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Bagehot

# On hypochondria

Jun 7th 2007
From The Economist print edition

**What have the British got to complain about, asks our new columnist?**

Steve O'Brien

A PLAGUE of iPods; a horde of Poles; “sofa government”; war unto the death with parking wardens. Returning from a posting to a cold, harsh, faraway country, Bagehot finds that new fads have gripped Britain during the final years of the Blair imperium. The country is oddly encumbered, too, with two prime ministers, the incoming one anointed through an opaque process that is not so different from the methods preferred in that harsh, cold country. But beneath this temporary quirk, and beyond the new gadgets and eastern European immigrants, there has been a subtler change: despite all the evidence to the contrary, there is a hardening conviction that the country is going to the dogs.

Large numbers of people are telling pollsters that life has deteriorated during Tony Blair's ten-year premiership. There is a brisk trade in books with titles such as “Is It Just Me or Is Everything Shit?” and “Time to Emigrate?”, the latter a question that growing numbers of Britons are answering affirmatively, with their feet. The commentariat seems even more convinced than normal that Britain's hospitals are a catastrophe, its civil service a farce and its inner cities godforsaken cesspits of crime.

Not all the evidence, of course, is to the contrary. The new hyperterrorism has arrived to stay. It dominates politics: witness the proposals mooted this week on increasing police powers and assimilating immigrants. And in their effort to dominate terrorism and protect themselves from its fall-out, politicians have eroded the longer-standing values of freedom and fairness. Worse, scarcely anyone seems to mind. There is still a streak of bolshy libertarianism in Britain—what the original Bagehot called “the inbred insubordination of the English people”—but these days it is more likely to be roused by the indignities of parking rules or speed bumps than by highfalutin notions such as *habeas corpus*.

Indeed, most of the clamour is for less freedom and more iron fist, in regard to both the new problem of indigenous suicide-bombers and the older one that used to be known as delinquency and has become a national preoccupation called “anti-social behaviour”. For all the statistics that purport to prove that crime is falling, Britons are fretting more than before about mugging, thuggery and a general lack of manners, especially among so-called “feral” children in British cities. The stubborn urban underclass that the “ferals” often hail from seems more under and angry than ever; the government has mostly failed to soothe it, or meaningfully to repair Britain's dangerous inequality.

These and other worries have been sharpened by widespread doubt (graver than normal) in government's ability to do anything at all, even to tell the truth. The biggest reason for this is the missing Iraqi weapons of mass destruction, though domestic cock-ups and “cash-for-peerages” have contributed too. Especially among younger Britons—who grew up knowing only Conservative rule, and expected New Labour to deliver the New Jerusalem it promised—the loss of faith also comes from the disappointments of a

government that, with all its economic and electoral luck, has delivered little.

## How lucky we are

But it has delivered something. Though the British have always been hypochondriacs, earlier bouts of intense self-deprecation—after the war, when bread was rationed and the empire fell apart, or the discontented late 1970s—have coincided with real hardship. By any sane measure, the current grouching doesn't.

In fact, the reliable economy that has sucked in all those Poles is dressing, feeding and entertaining most Britons better than ever, as their clothes and gastropubs, as well as the iPods, attest. Terrorism aside, they are also more pamperedly protected from mishap, albeit sometimes for fear of litigation. (Returning from a place where human life is tossed around as casually as polonium in a London sushi bar, Bagehot was dumbstruck by a sign in a supermarket, next to the organic fruit counter, advising customers to wrap their grapes carefully because “Grapes on the floor can cause accidents.”) Even the maligned public services have improved, if not in proportion to expenditure on them—as some Britons seem dimly to appreciate. Most, for example, report that their own encounters with the National Health Service have been good. Mr Blair's last-ditch, Clintonian bounce in the polls may be another indicator of a faint realism about the state of the nation.

But these inklings tend to be submerged in the mud of disgruntlement: the same public is convinced that, in general, the NHS is a wreck. What explains this disconnect? Perhaps Britain has passed the threshold of wealth beyond which, according to some economists, further gains do not produce greater happiness. More likely, 15 corrupting years of uninterrupted growth have raised expectations beyond any government's ability to fulfil them, as prolonged peace and prosperity can. Voters, alas, are fickle and forgetful, even or especially those old enough to remember the strikes of the 1970s or the privations of rationing. Improvements—even big ones such as shorter hospital waiting times—soon become facts, to be obscured by new gripes. Such as parking restrictions.

The political results of this hypochondria are uncertain. The Tories failed at the 2001 and 2005 general elections in part because the story they were then selling—of a country in meltdown—just didn't wash. Before he naively wandered into the stand-off with his party over grammar schools, David Cameron, the new Tory leader, was offering a more optimistic politics; perhaps he has misjudged the mood. But the consequences will surely be worse for Gordon Brown. Along with Iraq, this spiral of dissatisfaction may be among the most intractable problems that Mr Brown inherits from Mr Blair, when he finally becomes the sole prime minister next month.

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Russia and arms control

# Vlad and MAD

Jun 7th 2007
From The Economist print edition

Reuters

**First admitted to the Group of Eight as a gesture of goodwill and support for reform, Russia is concentrating its partners' minds—with offers and threats**

WHEN he met Vladimir Putin in 2001, George Bush said he had looked the Russian president in the eye and got a "sense of his soul" as a trustworthy man. Six years later, as the two leaders meet at the G8 summit in Germany, Westerners studying Mr Putin's inner self will more likely see a tough strategic adversary.

As Russia heads towards a new form of authoritarianism, Mr Putin's anti-Western rhetoric has grown ever more harsh and reminiscent of the cold war. This year has seen a crescendo of attacks. It started with Mr Putin's accusation in February that America's "unconstrained hyper-use of force" threatened the world; intensified in May with an implied comparison of America with Nazi Germany; and climaxed this month with a threat to re-target Russia's nuclear missiles on Europe.

If you believe him, Mr Putin's rage reflects his fear that the nuclear balance is being upset by Mr Bush's plan to put a limited missile defence system on Czech and Polish soil. "It is clear that if part of the US nuclear capability turns up in Europe...then we are forced to take corresponding steps in response," Mr Putin told a group of foreign journalists ahead of the summit. "What will those steps be? Naturally, we will have to have new targets in Europe."

So the era of nuclear mutual assured destruction (or MAD, the cold-war stability derived from the knowledge that if one side fired its rockets, the other could launch a devastating counter-attack), which supposedly ended when the red flag came down, could return. A Kremlin spokesman called his leader's comments a "hypothetical answer to a hypothetical question". But they were no slip of the tongue; similar remarks had been made earlier by a Russian general. Mr Putin, it seems, wants to make Western states see the depth of his anger.

America says the missile defence system is not aimed at Russia; it is designed to ward off Iranian missiles that may, one day, carry nuclear weapons. But for Mr Putin, the anti-missile shield is just a bid to revive the old Star Wars programme against the Kremlin—if not now, then in the future. Mr Putin has never liked America's missile defence, but seemed to acquiesce when Mr Bush quit the Anti-Ballistic Missile (ABM) treaty in 2002. America and Russia at the time made an agreement to reduce nuclear warheads to 1,700-2,200 each.

Several things have happened since those friendlier days. America has been weakened by the war in Iraq. Russia has grown richer on oil, and Mr Putin angrier over the expansion of NATO to his borders and especially the pro-Western "orange revolution" in Ukraine in 2004.

## A basin of alphabet soup

East-West arms accords

| Treaty | Parties & provisions | In force | Status/problems |
|---|---|---|---|
| Anti-Ballistic Missile (ABM) treaty 1972 | United States, Soviet Union: limited anti-missile defence sites | No | United States quit in 2002 |
| Intermediate-range Nuclear Forces (INF) treaty 1987 | United States, Soviet Union: axes ground-launched missiles in 500-5,500 mile range | Yes | Russia threatening to quit |
| Conventional Armed Forces in Europe (CFE) treaty 1990 | NATO, former Warsaw Pact: limits armour and aircraft in Europe | Yes | Russia threatens moratorium |
| Strategic Arms Reduction Treaty (START I) 1991 | United States, Soviet Union: cuts and limits long-range nuclear arsenals | Yes | Expires 2009 |
| Strategic Arms Reduction Treaty (START II) 1993 | United States, Russia: further limits on warheads; ban on land-based multiple warheads | No | Russia withdrew 2002 |
| Strategic Offensive Reductions Treaty (SORT) 2002 | United States, Russia: further limits on deployed warheads | Yes | Expires 2012 |

Source: *The Economist*

America's decision to build even limited missile-defence facilities in two ex-Warsaw Pact countries was, to him, an intolerable provocation, feeding a sense of encirclement. A week ago, Russia test-fired what it said was a new intercontinental ballistic missile with multiple warheads, able to counteract any missile shield. Mr Putin blamed America for starting a new arms race. Recently he has rattled other pillars of the post-cold-war order. In February a Russian general said his country could quit the Intermediate-Range Nuclear Forces (INF) treaty; in April Mr Putin threatened to freeze participation in the pact on Conventional Forces in Europe (CFE).

The Kremlin has given mixed signals about how far it will seek to nullify these accords, and how much these moves have been caused by the missile-defence row. Mr Putin has opposed the missile defences being proposed for Europe by saying Iran's rockets are no imminent threat to NATO. But on June 7th he surprised the Americans by proposing Azerbaijan as an alternative site—where the United States and Russia could jointly erect a missile shield, serving both European and Russian needs.

Russia has acted up in one forum after another—NATO, the European Union and the Organisation for Security and Co-operation in Europe—so far with little result. It has called an emergency meeting of parties to the CFE treaty in Vienna next week. Mr Putin berates NATO for not ratifying an amended (1999) text of the CFE pact. (NATO cites Russia's failure to keep its pledge to withdraw forces from Georgia and Moldova; Russian troops remain in both countries, as "peacekeepers" which in reality prop up pro-Kremlin statelets.)

Western replies to Mr Putin's outbursts have so far been muted. Mr Bush insists the missile-defence plan is open to Russian participation. "Russia is not an enemy," he said this week, playing down Mr Putin's nuclear threats. He has sent a succession of senior officials to Moscow to mollify Russia, with little success. He has also issued an unprecedented invitation to his "friend" Vladimir to meet him at his parents' home in Maine on July 1st.

Some Americans feel the worsening mood reflects Western mistakes too. "When Russia tried to co-operate, it got ignored, and now when it behaves badly it gets attention," argues Toby Gati, an ex-White House adviser. Mr Putin may be genuinely aggrieved that America has taken his past co-operation for granted—for instance in the war against terror. He may also reckon that by hitting the West hard on missile defence, he may exacerbate divisions in the Western camp.

The tone of Mr Putin's latest comments also reflects a mood of mounting tension after the request by Britain's Crown Prosecution Service for the extradition of a former KGB officer, Andrei Lugovoi. Britain wants to try him for the murder by radioactive poisoning of an exiled ex-secret policeman, Alexander Litvinenko, in London. Mr Putin seemed more irked by what he called the "foolish" extradition bid than by the substance of the case. He says it is constitutionally all but impossible for him to accept the request—and apparently feels pushed into a corner. To extradite Mr Lugovoi or try him at home would be kowtowing to the West (and betraying a KGB ex-colleague); by doing nothing, he may seem to be protecting a murder suspect.

The Russian leader may feel he has little to lose by antagonising the West. But the main effects of his cutting loose from global obligations may be felt not so much by the West as by opponents at home. Mr Putin recently made an obscure quip, saying that, apart from himself, there have been no "pure democrats" in the world since Mahatma Gandhi. Garry Kasparov, a chess champion turned opposition figure, begs to differ: he calls his country a "police state masquerading as a democracy".

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Concert of Democracies

# A seductive sound

Jun 7th 2007 | MOSCOW, NEW YORK AND SYDNEY
From The Economist print edition

**The modern diplomatic concert may be less tuneful than the old one**

WHAT would Klemens von Metternich, the 19th-century Austrian chancellor, make of it? One of his many diplomatic feats was to help create a “Concert of Europe”—a system by which four or five big powers kept miscreants in check and managed the affairs of smaller states. At least for a decade or two, starting in 1815.

Now the strains of a similar performance are reverberating in the heads of foreign-policy wonks, and contenders for power, in America and some other countries. This time players would come from the whole globe, and there is a change of tune. Metternich's concert defended imperial regimes from liberals; the new music's motif would be rule by the people, for the people. The catchiest of its several titles is the “concert of democracies”.

What such talk reflects is the frustration of some states over the inability of existing clubs (including the UN Security Council) to do their supposed jobs. Either because they have the “wrong” members or unwieldy rules, the present array of international institutions seems unable to fight bad things like arms proliferation, rogue states, crime—or to promote good governance and sound economics.

The G8, whose leaders were conferring in Germany this week, doesn't quite work either—although the summit host, Chancellor Angela Merkel, is trying to compensate by inviting the leaders of five “outreach” nations (China, India, Brazil, Mexico and South Africa) to join part of her gathering. But her attempts to formalise ties between the “eight” and the “five” have been mired in squabbling.

In any case, for the most zealous supporters of a democratic concert, neither Russia (already in the G8) nor China qualifies—on grounds of their human rights record and at times obstructive behaviour (from America's viewpoint) on the Security Council. The need to protect vulnerable democracies (like Estonia and Georgia) from Russian pressure was high on the agenda at a meeting in Prague, organised by an Israeli think-tank, that President George Bush attended this week.

All this provides the background for a much lower-key meeting that will take place in Italy in a few weeks' time. Foreign-policy types from many potential players in a democratic ensemble (including Japan, Brazil, Canada, India, Australia and Britain) will hold a brainstorming session with some of the American thinkers, such as Ivo Daalder and Tony Lake, who are promoting the new concert idea.

At its most Utopian, a “concert of democracies” would be an institution to trump all institutions: a global club, led but not monopolised by America, that would fight poverty, stem climate change and resist tyrants. Some see it as a body that could authorise the use of force; others want it to start small and prove itself.

John McCain, a Republican presidential candidate, warmed to the theme a few weeks ago by calling for a “league of democracies” grouping “like-minded nations working together in the cause of peace”. Tasks might include: helping Sudan's Darfur region; coping with AIDS in Africa; protecting the environment; promoting free trade; and squeezing pariah states “with or without” a nod from Russia and China.

Bill Richardson, a Democratic hopeful, says he shares the goals of the “democratic concert”—as part of an American re-commitment to multilateralism. But he hasn't given up on the UN Security Council.

Sceptics note that other recent efforts to rally the world's liberal powers—the “community of democracies” proclaimed in 2000, and a caucus within the UN—produced mere talking-shops. Others argue that, in an age of global threats, purely regional alliances, like old NATO, may be dead. Pacific powers like Japan and Australia are gradually moving towards closer links with the “Atlantic” alliance. Isn't that the basis for some new tunes?

But there are some catches in the concert idea, as any historian could tell you. For one thing, it is simpler for absolute rulers to defend monarchy than for democracies to act together in defence of democracy—if only because electorates are fickle and may want to change the score.

Take Australia. As long as John Howard, the pro-American prime minister, is in power, a “concert of democracies” could get a good hearing in Canberra. But if it means open-ended commitment to American-led military ventures, voters won't want to play. Sending Australian troops to Iraq has been unpopular, though voters are more sympathetic to Australia's role, alongside NATO, in Afghanistan.

Like most other countries invited to the concert, Australia must also consider the fact that not all its good friends are democracies. America is Australia's closest ally, but China is its second-biggest export customer after Japan; Australia is exploring a free-trade agreement with Beijing. Nor will the idea of keeping awkward types out appeal to all Australians. “International bodies are better if they include countries that cause problems as well as countries that fix them,” says Michael Fullilove of the Lowy Institute, a Sydney think-tank.

Another advantage of the 1815 concert was that the powers excluded from it were less powerful than those it embraced. France was initially kept out but by 1818 it had won a place; the other excluded player was the waning Ottoman empire. The concert failed when greed for Ottoman spoils prevailed over the ideal of co-operation.

The concert now proposed would face a bigger range of outsiders trying to spoil its tunes. As Fyodor Lukyanov—editor of a journal, *Russia in Global Affairs*—argues, the “non-democracies” would include not just two nuclear powers (Russia and China) but half the global population, and oil powers such as Iran and Saudi Arabia. A world thus divided could make the Soviet-American stand-off “seem like a children's game”, says Mr Lukyanov. In fact, he adds cheerfully, a world of “democrats versus non-democrats” would be a “horrific place, doomed to war”.

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Animal conservation

# The year of the elephant

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From The Economist print edition

**The wrongs and rights of ivory sales**

FOR anybody who cares about animals, the biggest fixture on the diplomatic calendar is a bunfight that happens every three years to review the working of a convention on the international trade in endangered species, known as CITES. At the current gathering, now taking place in The Hague, the sale of elephant ivory has been high on the agenda.

On June 2nd, CITES approved international sales of 60 tonnes of ivory from Botswana, Namibia and South Africa. The exports had been agreed on in principle in 2002, as long as these countries gave data on elephant poaching and population levels. The endorsement is good news for the countries that want to sell; they say the sales reward their conservation work and allow money to flow back to people who face the problems of living with elephants.

Other countries, such as Kenya and Mali, and of course many green groups, oppose the sales. They say a legal market facilitates the laundering of illegal ivory. In Thailand, the domestic (legal) market in ivory also handles quite a lot of illegal merchandise, says Mary Rice of the Environmental Investigation Agency (EIA), a British-based campaigning group. Elsewhere, legal shipments of ivory have been used to smuggle illegal ivory.

Another fear is that ivory sales may fuel the demand for ivory products. This is harder to gauge, but it is clear that current exemptions to the ivory-sale ban have caused confusion among consumers and allowed much illegal ivory to be sold.

Tourists can now buy small amounts of ivory in Zimbabwe and Namibia and legally take them home. Yet if they tried this in South Africa, they would be breaking the law. Confusion over what is legal is also exploited by internet sellers who enjoy a thriving trade. This problem prompted eBay to say on June 4th that it would ban cross-border ivory sales by the end of this month.

The heart of the problem, however, is the flourishing illegal market in ivory run by criminal networks of wildlife traders. Recent work suggests that the illegal trade saw its largest increase ever this year, and other evidence from seizures confirms that the illegal trade is booming. These criminal groups are feeding growing demand for ivory in Asia, particularly China—as documented in a report* issued this week.

One expert who works with Interpol says the trade is being boosted by a rise in the wholesale price of high-quality ivory, from $100 per kg in the late 1990s to $750 per kg this year. (It may now come down as a result of the newly authorised sale.)

Most illegal ivory heads for China, where legal loopholes allow imported illegal ivory to be “legalised”; traders can claim they happened to find a few forgotten tusks in their storerooms. To give an idea of the scale of the problem, EIA figures say China imported 32 tonnes of ivory in 1989 (the year of the ban) and had stocks of 50 tonnes. In 1990 there were said to be over 200 tonnes in the country.

China needs to close this legal loophole, as well as the vast illegal trade documented in the country by the new report. If it doesn't, many of the 500,000 visitors expected to attend China's “green Olympics” next year will end up unwittingly taking home poached elephant ivory.

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*“Made in China: How China's Illegal Ivory Trade is Causing a 21st Century African Elephant Disaster”, Environmental Investigation Agency, June 4th 2007

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

# Getting wind farms off the ground

Jun 7th 2007
From The Economist print edition

**Energy: If people object to wind farms cluttering up the countryside, one answer might be to put them in the air instead**

IF IT ever seems windy where you live, be thankful that you do not live ten kilometres (six miles) up in the air. At that height the jet-stream winds are stronger and blow more consistently than ground-level winds, and they carry up to a hundred times more energy. So just as oil companies are drilling deeper and in more remote locations in search of new reserves, pioneer wind-power engineers are looking higher in the sky for new sources of energy. Conventional turbines will not take them there—the tallest to date is just over 200 metres tall. Instead they are trying to invent a whole new technology for harvesting wind: electricity generators that fly.

One of the most ambitious ideas has been developed by Sky WindPower, a company based in San Diego and led by Dave Shepard. He began his career cracking Japanese military codes during the second world war, then developed machines for reading written text. His work led to the squared-off numbers still seen on bank cards today.

Mr Shepard's flying generator looks like a cross between a kite and a helicopter. It has four rotors at the points of an H-shaped frame that is tethered to the ground by a long cable. The rotors act as the surface of a kite does, providing the lift needed to keep the platform in the air. As they do so, they also turn dynamos that generate electricity. This power is transmitted to the ground through aluminium cables. Should there be a lull in the wind, the dynamos can be used in reverse as electric motors, to keep the generator airborne.

Mr Shepard estimates these rigs could produce power for as little as two cents per kilowatt hour (kWh). That is cheaper than the three to five cents conventional energy generation costs. It is an attractive idea, but a flying generator is a difficult thing to build—and there is a limit to how helpful existing helicopter technology will be. Aircraft require maintenance after a few days of operation, if not sooner. To operate cost-effectively, wind turbines will need to keep turning for many months without upkeep.

Mr Shepard, however, thinks he has a way out. Stabilising and directing a conventional helicopter requires that the pitch of the individual blades be adjusted with every rotation—up to a thousand times a minute. That puts massive stress on the turning mechanism and wears it out rapidly. With a four-rotor arrangement, you can achieve the same effect by changing the pitch of one or two whole rotors, rather than adjusting the pitch of individual blades. Mr Shepard reckons this will make a big difference and will increase the periods between maintenance enough to make the project viable.

Exploiting the jet stream represents the zenith (literally and figuratively) of aerial wind-engineers' ambitions. Ken Caldeira, a climate scientist at the Carnegie Institution who has worked with Sky WindPower, estimates that harvesting just 1% of its energy would produce enough power for everybody on the planet. But even at lower altitudes, the winds are stronger than they are at the surface, and that has attracted the attention of other inventors.

In Canada a company called Magenn Power has developed a proposal for a wind generator filled with helium. It turns around a horizontal axis, rather like a water mill, and could fly at an altitude of up to 1km. The firm sees its system as an alternative to diesel generators in remote locations where ground-level wind is insufficient for a normal windmill.

Meanwhile, Wubbo Ockels of the Delft University of Technology in the Netherlands has been developing another approach to airborne wind generation at lower altitude, with backing from Royal Dutch Shell, an oil giant, and Nederlandse Gasunie, a natural-gas company. Dr Ockels's idea is to launch a kite (without rotor blades) from a ground station, turning a generator as it rises to an altitude of several hundred metres. When it reaches its maximum altitude the kite alters its shape to catch less wind, and can thus be reeled back in using much less energy than it produced when it was being paid out.

An arrangement of two or more of these kites could act together to produce a steady supply of power. While one kite was being released, some of the electricity produced would be used to reel another kite back in, and vice versa. This system has the advantage that it requires only simple parts—generators, kites and cables—and should therefore be much cheaper to build than a conventional wind turbine.

Controlling it, however, would be a different matter. Dr Ockels is working on kites with wings and rudders, which look much more like planes than anything you might see flying in the park. The wings and rudders themselves would be under computer control—the technology is already well established for flying aircraft without a human pilot. To test the idea Dr Ockels's team is building a 100-kilowatt prototype. He hopes to start testing a full-scale device, which would generate 10 megawatts, within five years. That would be enough to power around 6,000 homes. He believes it should be possible to generate electricity at a cost of just 1 cent per kWh.

Any promise of such cheap energy has to be treated with scepticism and all these projects are still a long way from the full-scale test rigs needed to prove they will succeed. No one denies that it will be hard to build a flying generator that can make money. However, the political impetus behind renewable energy is growing and space is limited at ground level. Perhaps it is time for the wind-power industry to reach for the sky.

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# A cool concept

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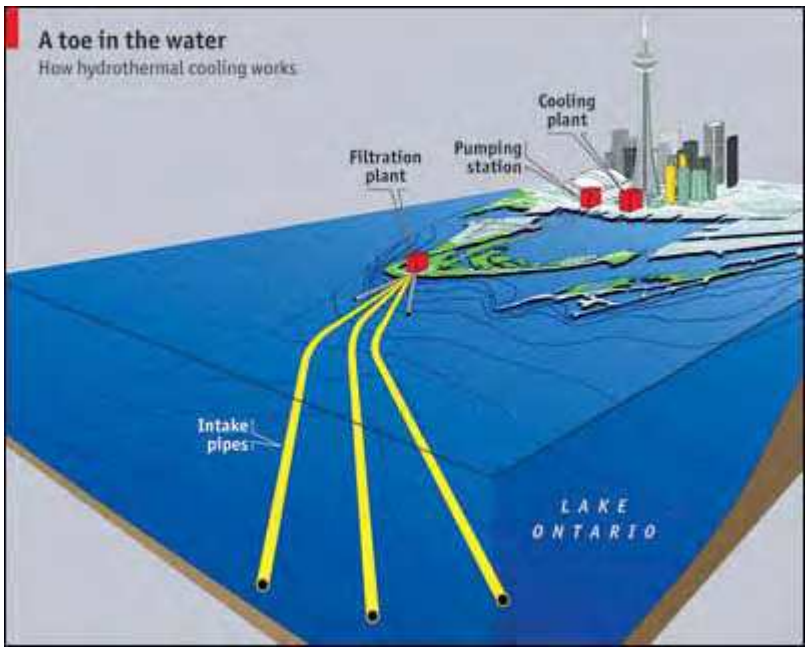


**Energy: Hydrothermal cooling is a novel approach that uses cold water from lakes and oceans to run air-conditioning systems**

GEOTHERMAL heating—using the warmth of the Earth's interior to heat water—is an old idea. Using the planet's natural coolness, though, is something of a novelty. Nevertheless, as cooling and heating are merely two ends of the same process, it could save money and reduce carbon-dioxide emissions. As long, that is, as you can find a suitable source of cold. Fortunately for Toronto, it sits next to a very large supply of the stuff, in the form of Lake Ontario. Canada's largest city has been pioneering the idea that instead of using electricity to power air conditioning, a useful supply of cold can be directly extracted from the environment.

Three large pipes have been run five kilometres (three miles) into Lake Ontario, to a depth of 83 metres. The water at that depth is a constant 4°C, its temperature protected by a layer of water above it called a thermocline. The water is piped to a filtration plant and then to a heat-transfer station on the mainland. Here the chill is “transferred” to another closed loop consisting of smaller pipes that supply the towers of the city's financial district. Built at a cost of C$230m ($200m) over four years, the system is run by the Enwave Energy Corporation.

One of the first buildings to be connected was the Toronto Dominion Centre, a distinctive set of office towers. Three of the five black buildings were designed by Ludwig Mies van der Rohe and were built in the late 1960s and early 1970s. So was their air conditioning. Connecting them to the deep-water cooling project saves 7.5 megawatts of electricity. The two newer towers, modelled on Van der Rohe's designs, were also recently connected and this summer all five will be air conditioned by water from Lake Ontario. That will save another 2.5 megawatts.

Another 12 megawatts will be saved by connecting up the Royal Bank Plaza and the Metro Centre, seat of the local government. Some 36 buildings in the central business district have now been connected and a further 16 have signed on to join the system. The project is expected to reduce the city's energy needs by 61 megawatts.

Toronto's project is the largest of its kind in the world, and the only one that combines cooling with drinking water. (The water taken from the lake goes on to drinking-water reservoirs and provides about 15% of the city's drinking water.) Other cities use similar cooling projects. The one in Stockholm uses seawater and is about two-thirds the size of Toronto's. A much smaller system at Cornell University uses

Lake Cayuga as a source.

Geneva would be an ideal candidate for the system, as Lake Geneva is both cold and deep. The city is investigating a scheme. Tokyo also has deep water, but has not yet done anything about using it. But not all cities can benefit. Chicago, for example, initially appeared promising as it has harsher winters than Toronto and sits beside frigid Lake Michigan. But close to the city, Lake Michigan is shallower than Lake Ontario. To get cold water, engineers would have to lay pipelines that were six times as long as Toronto's. Officials in New York have also explored using such a system, but they ran into a similar problem: the neighbouring ocean is too shallow.

Using cold water for air conditioning saves more than just energy. Most office and apartment towers put the cooling units on the roof. Removing them means the space can be used for other things, such as running tracks or gardens. The three original Van der Rohe towers in Toronto have the cooling units built-in between floors, so they appear as black, windowless bands from the outside. The owner of the buildings is now working out how to convert the area previously occupied by the cooling units into office space—which in downtown Toronto is as precious as electricity.

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# Seeing the light

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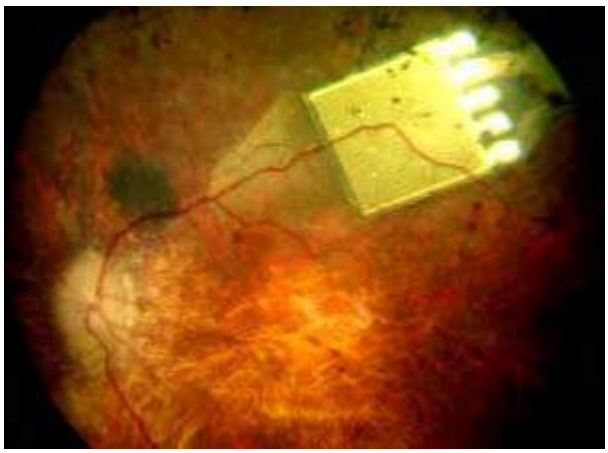
**Visual implants: An electronic retinal implant uses technology borrowed from digital cameras to restore some sight to the blind**



**A glimpse of a bionic future**

THESE days using silicon chips to allow machines to see is commonplace. So why not use them to restore sight to the blind? That is the reasoning behind a study being carried out in the eye hospitals of Tübingen and Regensburg universities, in Germany. The project, which is being led by Eberhart Zrenner, involves implanting chips into the eyes of seven people who have lost their sight to a disease called retinitis pigmentosa.

Retinitis pigmentosa is an inherited disorder that accounts for 11% of cases of blindness and has no medical treatment. It gradually destroys the rods and cones that detect light in the retina of the eye. But it does not harm the optic nerve, which transmits electrical impulses from the retina to the brain. Feed some appropriate electrical signals to this nerve, Dr Zrenner reasoned, and the brain would be able to see again.

The chip that does this was designed by a firm called Retina Implant. Its researchers used photodiodes (the technology found in digital cameras) that generate an electrical signal when light strikes them. By putting 1,540 such sensors on a chip that can be implanted over the retina the company has created a device that can produce an image made up of 1,540 picture elements, or pixels—though it is a very coarse image, given that a healthy eye has 120m rods, which produce the bulk of the image, and 6m cones, which add colour to it.

Each diode stimulates the nerve cells that have their endings in the retina—unlike the photoreceptors, these cells are unharmed by retinitis pigmentosa—and the nerve cells in question then relay their individual signals to the brain via the optic nerve. Electrical power is supplied using a cable connected to a small battery slung around the patient's neck, though Retina Implant eventually hopes to supply power wirelessly, using electrical induction. That would not require anything to penetrate the skin.

The seven volunteers spent a month with the implants and reported being able to distinguish between dark walls and a light window, and a dark table and white plates. The image was coarse compared with normal vision because of the small number of pixels, and the patients did not see fully in colour, although they reported being able to distinguish white, grey and yellow tones. Nevertheless, enough sight was restored to make a difference to each of the volunteers' lives.

The researchers now want to repeat the experiment and keep the implants in place for at least a year. (Their original research licence was limited to four weeks.) They hope this will be long enough for their patients' brains to learn how to interpret the images more accurately than they now can. Newer versions of the devices will also have more pixels, so that the image-quality should be better. Walter Wrobel, the

boss of Retina Implant, reckons the cost for each one at about €25,000 ($35,000). That is less than the bill for training a guide dog—and the implants will not require feeding.

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# Bubbling under

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From The Economist print edition

**Microbubbles: A new technique to treat disease involves the careful injection of tiny, drug-coated bubbles in the bloodstream**

Belle Mellor

THILO HOELSCHER, a neurologist at the University of California, San Diego, is a man with a plan. His plan is to deal with strokes by blowing bubbles at them. The bubbles in question would be small enough to inject into blood vessels leading to the affected part of the brain. When they got to the blood clot that caused the stroke, they would be jiggled into action by the application of ultrasound. The result would be myriads of tiny jackhammers chipping away at the clot before it had a chance to cause too much permanent damage.

What makes this approach particularly interesting is that Dr Hoelscher wants to start treating stroke patients as soon as they are heaved into an ambulance, rather than waiting until they arrive in the emergency room. He plans to start a feasibility study before the end of the year in which some of San Diego's ambulances will be equipped with portable ultrasonic transducers.

Andrei Alexandrov, a pioneer in therapeutic-ultrasound research who now directs the stroke centre at the University of Alabama, is pursuing a similar approach. He is designing an easy-to-use ultrasound helmet that an emergency-room nurse can attach before administering a vial of microbubbles.

Both schemes are examples of a new idea in medicine, which is to use tiny bubbles of gas not merely to highlight organs during ultrasonic scanning, as has been done for several years, but also as a form of treatment. With clinical trials now getting under way, experts think it will take around five years for these new therapies to reach patients.

Microbubbles are not just any old bubbles. They contain a chemically stable gas, such as perfluoropropane, instead of air. This gas is encapsulated in a fatty shell rather like a very small balloon. Even the largest microbubbles being tested for medical use are only five microns across, less than the diameter of a red blood cell. More advanced bubbles are only a few hundred nanometres across and can move easily through the lining of a blood vessel. They may also, crucially, be able to cross the blood-brain barrier, a tightly sealed layer of cells that protects the brain from dangerous chemicals, including many drugs. If you put such a drug in the surface layer of a microbubble, you might be able to smuggle it into the brain.

Having got into the brain (or anywhere else), a well-designed microbubble should also be able find a particular target. That is because the fatty layer can include molecules such as antibodies, which link up with proteins found on the surfaces of only one type of cell. A bubble with such an antibody in it would thus stick only to that type of cell.

This sort of approach is being tested by Mark Borden and Paul Dayton, who work at another of the University of California's campuses, in Davis. They have demonstrated in rats that bubbles with an appropriate outer layer can be equipped with molecules that stick specifically to diseased cells. These molecules are initially hidden under a polymer layer to prevent the immune system from destroying the bubbles. But when the bubble arrives at its target, it is blasted with ultrasound in a way that exposes the molecule and makes the bubble stick.

The two researchers can also use sound waves to steer bubbles towards a target, as if those bubbles were surfing a wave in the sea. Moreover, they can slow the bubbles down when they arrive where they are wanted. Once the bubbles have stuck good and fast to their targets, turning up the ultrasound still further will burst them, so that they release their payloads precisely where they can do most good. The result is smaller, better-aimed doses of drugs, which should mean fewer side-effects.

In principle, such payloads could be small-molecule drugs such as those used for cancer chemotherapy. They could be therapeutic proteins such as antibodies and certain hormones. They could be radioactive isotopes designed for highly local radiotherapy. They could even be pieces of DNA intended as gene therapy.

Such work, of course, is not confined to the academy. ImaRx Therapeutics of Tucson, Arizona, has just begun a trial of its own bubble-based stroke therapy, which it is branding as SonoLysis. The bubbles are being tested in conjunction with an established clot-buster called tPA. Meanwhile, two other American firms, Nanotrope and Targeson, are working on ways of making customised bubbles to order, the latter by forcing an emulsion of water and oil combined with whatever therapeutic agent is desired through a narrow plastic nozzle at high speed.

Bubble therapy is not yet reliable. Safe doses of sound waves, the best size for the bubbles and the amount of drug each should carry have all to be worked out. At least one trial, run by Michael Daffertshofer of the University of Mannheim, in Germany, had to be stopped because the researchers discovered that the ultrasound was causing brain haemorrhages. Yet if safe combinations of bubbles and ultrasound can be found, blowing bubbles at diseases could be a clever way to tackle problems where they arise, rather than subjecting the whole of a patient's body to treatments it does not need.

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# Overdoing it?

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**Networking: Internet-service providers are worried that new online-video services, such as Joost, will overload their networks**

WHEN Niklas Zennström and Janus Friis announce a new venture, the world takes notice. As the duo behind KaZaA, a file-sharing network that was widely used to trade music, and Skype, a free internet-phone service, they have already shaken up the music and telecoms industries. So when they took the wraps off their latest project, a television-over-internet service called Joost, it looked as though the television industry might be the next to suffer. Yet rather than adopting the defensive stance that has often characterised traditional media's response to new technology, the likes of Sony, Viacom and Turner Broadcasting have signed deals with Joost to provide the service with content.

As a result it is the rather less glamorous internet-service providers (ISPs) that are having sleepless nights. Frederick de Wahl, Joost's boss, says software companies have been waiting for the internet's infrastructure to reach sufficient “maturity” before trying to pipe full-screen television over the patchwork of technologies that are used to deliver broadband to homes. Joost uses a proprietary peer-to-peer (P2P) protocol that pipes data to viewers at a rate of 350 megabytes per hour. But networks are now up to the job, and Joost is expecting to amass millions of users, if not tens of millions, within the year. “It is a bandwidth-intensive product, that much is obvious,” says Mr de Wahl. ISPs, he says, should be “aware and prepared”.

Some of the companies that run the telecoms networks over which Joost and other bandwidth-hungry services hope to run are less confident that the internet's foundations are ready to bear the strain. Concern over the internet's ability to handle large amounts of video has opened a niche for companies that offer guaranteed network links that run alongside, but separately from, the internet. PacketExchange, for example, trumpets its service as a “faster, safer and more reliable alternative to the public internet”. Worries about overtaxed networks are also prompting outright bans on internet video. America's armed forces recently began blocking access to video services such as YouTube and MySpace from their internal networks, because of bandwidth limitations at their internet gateway.

ISPs are particularly worried. P2P applications such as Joost are used by less than 5% of a typical ISP's subscriber base, but they account for over half the total traffic. Comcast, an American cable operator, has been criticised for cutting off intensive P2P-using “bandwidth hogs”, even though it refuses to specify exactly what it regards as acceptable usage limits.

Many ISPs have taken the less drastic measure of “throttling” the download speeds available to their heaviest users at peak times, which are between 4pm and midnight—in other words, prime-time for television. Virgin Media, a British ISP that recently introduced throttling, offers a maximum download speed of 20 megabits per second, but this is reduced once a three-gigabyte limit has been exceeded. If the connection is running at full capacity, that will take 20 minutes.

If Joost and other P2P video services become popular, they may prompt ISPs to change their business models. They might, for example, require users who wish to use such services to sign up for special service plans, presumably at a higher price, that allow such use and, perhaps, give priority to P2P traffic to ensure stutter-free video streaming. “There's got to be more realism—we may be coming to the end of one model of working,” says Kevin Baughan, Virgin Media's technical-strategy director. Since many ISPs also offer video services of their own they are unlikely to look kindly upon free services carried over their pipes.

The question is whether blocking P2P traffic altogether would be legal. Some telecoms companies have blocked customers from making voice-over-internet calls over their broadband connections, because they are worried about how internet telephony will affect the money they make from traditional phone calls. In some countries internet telephony is outlawed for this very reason. But American regulators ruled that this practice was unacceptable when Madison River, a rural operator, tried it in 2005. And in 2006 after a Chilean operator, Telefónica Chile, tried to block Skype, a court ruled that its action was anti-competitive. It is not hard to imagine the same sorts of arguments being applied to video services.

Mr de Wahl says his company is happy to work with ISPs to overcome problems, and he is confident Joost is not about to break the internet. But he is prepared for conflict. “I'm sure some people are going to try and block us,” he says. But he notes that similar worries arose with previous internet technologies, such as newsgroups, the web and file-sharing, all of which involved big increases in the amount of network traffic. “I'm not saying this isn't going to take some new infrastructure,” he says. “But it's happened before, and the internet is still here.”

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# Robot wars

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From The Economist print edition

**Military technology: Unmanned vehicles and robot soldiers are on the march. Can such machines be programmed to act ethically?**

**Where do we plug in the ethics upgrade?**

WAR is expensive and it is bloody. That is why America's Department of Defence wants to replace a third of its armed vehicles and weaponry with robots by 2015. Such a change would save money, as robots can be much cheaper to replace than people. Just as importantly for the generals, it would make waging war less prey to the politics of body bags. Nobody mourns a robot.

The Pentagon already routinely uses robotic aeroplanes known as unmanned aerial vehicles (UAVs). In November 2001 two missiles fired from a remote-controlled Predator UAV killed Mohammad Atef, al-Qaeda's chief of military operations and one of Osama bin Laden's most important associates, as he drove his car near Kabul. But whereas UAVs and their ground-based equivalents, such as the machinegun-toting Sword robots, are usually controlled by distant human operators, the Pentagon would like to give these robots increasing amounts of autonomy, including the ability to decide when to use lethal force.

To achieve this, Ronald Arkin of the Georgia Institute of Technology, in Atlanta, is developing a set of rules of engagement for battlefield robots to ensure that their use of lethal force follows the rules of ethics. In other words, he is trying to create an artificial conscience. Dr Arkin believes that there is another reason for putting robots into battle, which is that they have the potential to act more humanely than people. Stress does not affect a robot's judgment in the way it affects a soldier's.

His approach is to create what he calls a “multidimensional mathematical decision-space of possible behaviour actions”. Based on inputs ranging from radar data and current position to mission status and intelligence feeds, the system would divide the set of all possible actions into those that are ethical and those that are not. If, for example, the drone from which the fatal attack on Atef was launched had sensed that his car was overtaking a school bus, it might then have held fire.

There are comparisons to be drawn between Dr Arkin's work and the famous Three Laws of Robotics drawn up in the 1950s by Isaac Asimov, a science-fiction writer, to govern robot behaviour. But whereas Asimov's laws were intended to prevent robots from harming people in any circumstances, Dr Arkin's are supposed to ensure only that they are not unethically killed.

This is an admirable goal in theory, but even if ethics can be neatly encoded into software, pitfalls remain. Although a completely rational robot might be unfazed by the chaos and confusion of the battlefield, it could still make mistakes. Surveillance and intelligence data can be wrong, and conditions and situations on the battlefield can change. Admittedly, this is as much a problem for people as it is for robots. There is also the question of whether the use of such robots would lead to wars breaking out more easily. Dr Arkin has started to survey policymakers, members of the public, researchers and military personnel in order to gauge their views on the use of lethal force by autonomous robots. And creating a robot with a conscience might give the generals more than they bargained for. To some degree, it gives the robot the right to refuse an order.

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# The trees have eyes

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From The Economist print edition

**Conservation: An elaborate combination of technologies is being deployed to try to curb the illegal hunting of endangered species**

Belle Mellor

NOUABALÉ-NDOKI national park, in the Republic of Congo, is 4,200 square kilometres of virgin tropical forest that is as densely populated with elephants and great apes as it is sparsely populated with rangers. There are 14 of them, and they have failed to nab a single poacher for more than a year. That is not for lack of illegal hunting in the park. Demand for ivory is up, driven largely by consumers in Japan and an increasingly wealthy China. The value of meat from elephants, apes and other animals has also risen as loggers and miners move deeper into the country's forests. Nor is this a problem confined to Congo. Last year poachers are estimated to have killed more than 23,000 African elephants. According to a study by the University of Washington, that is about one in 17 of the continent's total.

Nouabalé-Ndoki's hard-pressed rangers are, however, about to get some high-tech help in the form of TrailGuard, a system of small and easily hidden electronic detection and communication devices. They will soon begin burying radio-transmitting metal detectors alongside elephant trails leading into the park. Authorised hikers through the park will be given transponders that tell the detectors who they are, as with the “identification friend-or-foe” systems on military aircraft. But when poachers carrying rifles or machetes traipse by a detector, it will send a radio signal to a treetop antenna. Seconds later the rangers will receive the intruder's co-ordinates on their satellite phones. They will then be able to respond precisely, rather than slogging around on fruitless and demoralising patrols on the off-chance of catching a poacher up to no good.

TrailGuard is the brainchild of Steve Gulick, an electrical engineer turned biologist who recently left the State University of New York (SUNY) to set up a not-for-profit organisation called Wildland Security, to promote his idea. Besides catching more (or, indeed, any) poachers, he hopes his invention will also prove to be an example of an idea from another one-time electrical engineer, Arthur C. Clarke. Clarke's Third Law, as it is known to fans of his science-fiction writing, is that “any sufficiently advanced technology is indistinguishable from magic”. Many people in Congo do believe in magic and Mr Gulick does not propose to disabuse them of the notion. Local people will receive no explanation for the rangers' new powers. That, Mr Gulick hopes, will discourage potential poachers from turning thought into deed.

Nor are metal detectors the only magic to be deployed. Small fire detectors hidden in trees should add to the anti-poaching unit's reputation for clairvoyance. Poachers frequently smoke meat from their kills to preserve it during transport to market. Like the metal detectors, the fire detectors will alert the rangers by satellite phone, allowing them to swoop as from nowhere.

Belle Mellor

Congo is not the only country about to apply technology to conservation. In Costa Rica's Osa reserve two wildlife-preservation groups are testing similar metal-detector and satellite technology intended to curb the poaching of exotic birds (sold to pet stores) and jaguars (killed for their fur, or because they eat livestock). The project is expected to work well because, as in the Congo, lush vegetation makes it difficult to avoid trails, where most surveillance equipment can be set up.

Whether such equipment will work outside forests has yet to be tested. But there are reasons to hope it might. In savannahs, for example, traffic moves toward or away from watering holes—and brush, sand and slopes keep most vehicles on tracks. The Galapagos Islands, a prime target for unlicensed hunting, has few practicable landing spots

for boats and passages through the volcanic-rock landscape. Given that animals have established breeding grounds, this dictates poachers' movements, says James Gibbs, who works at SUNY's environmental-science department. He is testing a metal-detector-and-satellite system at a place on Isabela, the largest of the islands, where giant tortoises gather. At the moment, the animals are often killed by poachers for their meat, their shells and a fatty gel that can be clarified into a tasty cooking oil. If Dr Gibbs has his way, this will soon stop.

Yet another place where anti-poaching sensors will soon be deployed is the Shavla Wildlife Refuge in Russia's Altai Republic. This is one of the few remaining strongholds of the snow leopard. Shavla's anti-poaching brigades vie with those of Nouabalé-Ndoki in the difficulty of their task. Though they have a mere 2,500 square kilometres to patrol (as opposed to 4,200), they have only 12 men and the land is mountainous.

Snow leopard skins sell for up to $3,000 in China, “where they are used as a nice rug,” says Misha Paltsyn, a local conservationist and the head of Arkhar, a nature-conservation organisation based in Altai's capital, Gorno-Altaisk. In the autumn Arkhar will begin hiding heat detectors with satellite links in the refuge's unattended cabins. As with Nouabalé-Ndoki, authorised visitors will be given transponders. Unauthorised ones will get an unexpected visit shortly after they fire up the stove.

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# Online gaming's Netscape moment?

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**Video games: Existing virtual worlds are built on closed, proprietary platforms, like early online services. Might they now open up, like the web?**

**In their own little virtual world**

WHEN you sit down to play a “massively multiplayer online” (MMO) game such as “World of Warcraft” or enter a virtual world such as Second Life (pictured), your computer connects to a distant server which holds all the data needed to model the synthetic realm and to co-ordinate the actions of different players. The “client” software on your computer updates the server with your every move, and the server keeps all players informed of each other's actions. This enables each player's computer to render a vivid, three-dimensional world.

The software that does this, however, is proprietary: each game requires its own client and server software. MMOs and virtual worlds are, in short, like walled gardens. You cannot move from one virtual world to another. Just as with early online services—CompuServe, Genie, AOL and Prodigy—users exist in separate communities, each of which has its own way of doing things. “There is a place for such worlds,” says Richard A. Bartle of the University of Essex, who was the co-author of MUD, the first ever multi-user adventure game on a computer. “But that's by no means the whole story, any more than AOL is the whole internet.”

What happened on the internet, of course, was that the web came along and provided common, open standards for both client and server software, doing away with proprietary online services and bringing together previously separate communities as CompuServe, AOL and the rest adopted the web's open standards. Now a firm called Multiverse Network hopes to do the same for MMOs. It has created MMO client and server software based on open standards, and a way to move between virtual worlds built on its platform, just like following a link from one web page to another. And it has made its software available for free download by anyone who wants to build and host a virtual world.

If this all sounds reminiscent of Netscape, the company that popularised the web browser, that may be because Multiverse was founded by four Netscape veterans. They decided they wanted to work together again and turned to the idea of creating an MMO. But they soon realised that it would be too expensive and time-consuming for a small, independent team. So they chose instead to create a platform and the tools to allow just about anyone to create an MMO, without having to make their own client and server software from scratch.

As the video-game industry matures, the economics of providing such software are becoming increasingly attractive. Producing the artwork, character designs, script, sound effects and score for a modern game is complex and expensive enough as it is—why reinvent the wheel and build the software from scratch? Technology licensing is becoming more common as game studios buy in specialist programs to perform physics modelling, handle network communications, provide the game's main graphical “engine”, and so on.

Several modern “first-person-shooter” games are based on Unreal, a three-dimensional graphics engine.

In the 1990s id Software licensed the engines behind its popular games, “Doom” and “Quake”. Now the same thing is starting to happen with MMOs, since they are hugely expensive to develop. Multiverse is not alone: other firms such as Hero Engine and BigWorld Technology are also developing MMO platforms for others to use, in the hope of defining the industry standard.

As with the web, the hope is that the emergence of a single, open platform will encourage wider adoption and new uses of the technology. Before the web, companies that wished to establish an online presence had to do so on proprietary platforms. The same is true today. Lots of companies are setting up shop in Second Life, but some might prefer to have their own worlds, not just islands in someone else's world, just as they have their own websites. Multiverse says that companies are starting to create worlds for training simulations, business collaboration, and modelling disasters.

One advantage that Second Life has, as AOL and its kind did in the mid-1990s, is a critical mass of users at whom advertising can be targeted. Companies that create their own worlds, or set up new game worlds, will need to find a way to attract visitors—just as they have to with their websites. “You have to figure out why you're creating your virtual world, what people will do there, how you'll promote it,” says Bill Turpin, the boss of Multiverse. And how will people find relevant or interesting worlds? Multiverse will provide a number of ways to search, though this too will be open. Corey Bridges of Multiverse says it would be “fantastic” if Yahoo! and Google wanted to add support for searching for worlds.

Providing backwards compatibility with existing worlds is difficult, however, because each uses its own data structures and communications protocols. So just as the Netscape browser could not access Prodigy or Genie, the Multiverse browser will not work with “World of Warcraft” or Second Life. It is already proving popular among developers nonetheless. Over 10,000 developer teams have registered to use the platform, in part because of Multiverse's attractive business model. All of its software is free to use, but once developers begin to make money from their worlds—from subscriptions, in-game advertising or sales of in-game items—they pay 10% of their revenue.

One such developer is Edward Castronova, a professor at Indiana University. Given a grant by the MacArthur Foundation to evaluate the potential impact of virtual worlds, he is building a world called “Arden”, an idealised portrayal of Shakespearean England. He and his students have spent the past year recreating medieval Somerset—geography, villages, characters, and an economy—on the Multiverse platform. This will provide a way to explore Shakespeare's works, an arena in which to perform social-science experiments, experience of game design for those hoping to go into the industry—and, Mr Castronova hopes, a good game.

He is optimistic about the Multiverse approach, which will provide a choice of hundreds of worlds to explore. “You'll be in one world, you'll click on a portal, and you'll be in the next one,” he says. Just as the web makes it possible to create and follow links between a huge variety of websites, an open platform for virtual worlds could allow users to stroll seamlessly through Atlantis, across Mars and all the way to Shakespeare's Arden.

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# Sharing what matters

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**Software: A computing maverick hopes to upgrade the web, transforming it from a document collection into a data commons**

Belle Mellor

MOST people find it difficult to keep up with Danny Hillis's imaginative leaps. In the 1980s he dreamt of building intelligent computers and co-founded Thinking Machines, a firm with a mission to make machines "that will be proud of us", as he used to put it—with tongue only half in cheek. That did not quite happen, but Mr Hillis did, in the process, pioneer the field of massively parallel supercomputing. After a stint at Disney, where he proposed building a theme-park full of free-roaming robot dinosaurs, he turned his attention to building a mechanical clock that will run for 10,000 years, a task that arguably requires genius in its justification as well as its execution. Now this maverick of the technology industry has a new idea that could have a big impact rather sooner than that.

It concerns the web, a creation that, though impressive, is pedestrian compared with what Mr Hillis has in mind. Today's web allows easy and universal sharing of documents. Before the web, internet users could share documents only by making bilateral arrangements—requesting a document from someone else by e-mail, for example—which incurred transactional "friction", so that relatively few people did so. The web eliminated that friction. Today it is obvious that this was world-changing, but Mr Hillis still remembers "how hard it was to explain" before it happened.

Déjà vu. The next step, he says, is to let the web do for data what it has already done for documents. Just as there used to be lots of people with interesting but unshared documents, today there are innumerable people and organisations with useful but locked-up databases. These range from topics of life-and-death importance—the World Health Organisation's data on bird-flu outbreaks, say—to things that are deceptively banal but potentially useful—a foodie's private spreadsheet listing the best wines at his local restaurants, say. For data to change the world as documents have changed it, the web must again eliminate all friction involved in sharing.

Metaweb Technologies, a firm set up by Mr Hillis and his co-founders, Robert Cook and John Giannandrea, aims to do exactly that with Freebase, a website that sits on top of a new kind of database. The name is not a pun on cocaine but a contraction of "free" and "database", since the database shares the spirit of Wikipedia, the free and collaborative encyclopedia. (Mr Hillis is on the advisory board of Wikipedia's parent organisation.) Just as Wikipedia lets people contribute information to its articles, Freebase, which is in a test phase, will let anybody contribute, correct or recombine data. The difference is that information on Wikipedia tends to be "unstructured"—ie, buried in text—whereas on Freebase it will be structured, so that each item can be re-used in any context.

It is an open question whether enough people will contribute their data to generate the momentum of Wikipedia, but Mr Hillis is optimistic. "Most people with data want others to have and use it," he reckons. A boffin who collects data on butterflies, say, might want to upload it so that others with the same fascination can add their own information. Another researcher might then add data on lizards, and yet others might then combine the data on butterflies and lizards with existing geographical data to create maps or analyse patterns. The fact that users will not know in advance how their data might be used is precisely the point.

This requires a new level of flexibility in the database. When building most databases today, programmers decide in advance what sort of questions users might wish to ask of the data, by defining what are known as the "schema"—the types of records in the database and the relationships between them. Metaweb's 35 programmers, by contrast, have built a new sort of database, based on a more flexible structure known to programmers as a "graph", which allows users to contribute and use not just

data, but schemas as well. They can, in short, ask any sort of question of the database.

Metaweb is thus very different from commercial database software, such as that made by Oracle, and from Google Base, which might superficially appear similar because it too allows anybody to upload data. Google Base, says Mr Cook, consists of many independent data sets that are stored in a coherent way. This means that many records are duplicates—if several people upload the details of the same digital camera, say—and may even contradict one another. Metaweb, by contrast, reconciles conflicting data and ensures that each object exists only once in the database. But each object can be tied to every other object, so that the resulting web of associations looks rather like the neural networks in a brain.

There is one similarity to Google, however. The search giant's founders, Sergey Brin and Larry Page, initially concentrated on perfecting a technology (search) that could change the world, without worrying about a business model, which came much later (in the form of advertising). Mr Hillis plans to do the same. For now, he is much too excited about the technology to worry about the money. “Everything else I've worked on, if it succeeds, only helps one thing,” he says. “This has the potential to make everything better.”

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# Home truths about telecoms

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**Technology and society: Anthropologists investigate the use of communications technology and reach some surprising conclusions**

Belle Mellor

SUCH is the social significance of mobile phones that when it comes to evaluating their use and planning new products and services, mobile operators and handset-makers cannot rely on the technology-driven, engineering mindset that has traditionally dominated the telecoms industry. Most famously, industry leaders expected people to embrace videotelephony, which flopped, but failed to anticipate the success of text-messaging. So they are turning to social scientists, and in particular to anthropologists, the better to understand how telephones are used.

One of Nokia's in-house anthropologists, Jan Chipchase, recently investigated how people carry their phones, for example. He and his colleagues carried out street-level surveys in 11 cities on four continents. They found that 60% of men carried their phones in their trouser pockets, whereas 61% of women carried their phones in handbags. (The difficulty of finding a mobile phone in a cluttered handbag meant that half of women reported missing calls as a result.) Belt pouches were particularly popular in China: 19% of men used them in Beijing, and 38% in Ji Lin City. But they were less popular in fashion-conscious Milan, where only 4% of men used them, and belt pouches were non-existent in Tokyo. Adding covers to phones was most widespread in Seoul and Kampala, and the use of decorative phone straps was most popular in Seoul and Tokyo. Findings like these can help handset-makers design new products and accessories that are appropriate to particular markets.

Meanwhile, Stefana Broadbent, an anthropologist who leads the User Adoption Lab at Swisscom, Switzerland's largest telecoms operator, has been looking at usage patterns associated with different communications technologies. She and her team based their research on observation, interviews, surveys of users' homes and asking people to keep logbooks of their communications usage in several European countries. Some of their findings are quite unexpected. Although mobile phones make it easier to keep in regular touch with a wide group of friends, for example, it turns out that a typical user spends 80% of his or her time communicating with just four other people.

Next, despite much talk of “convergence” within the industry, people are in fact using different communications technologies in distinct and divergent ways. The fixed-line phone “is the collective channel, a shared organisational tool, with most calls made 'in public' because they are relevant to the other members of the household,” she says. Mobile calls are for last-minute planning or to co-ordinate travel and meetings. Texting is for “intimacy, emotions and efficiency”. E-mail is for administration and to exchange pictures, documents and music. Instant-messaging (IM) and voice-over-internet calls are “continuous channels”, open in the background while people do other things. “Each communication channel is performing an increasingly different function,” says Ms Broadbent.

Another finding is that despite the plunging cost of voice calls, and the rise of free internet-calling services such as Skype, people seem to prefer typing. “The most fascinating discovery I've made this year is a flattening in voice communication and an increase in written channels,” says Ms Broadbent. Her research in Switzerland and France found that even when people are given unlimited cheap or free calls, the number and length of calls does not increase significantly. This may be because there is only so much

time you can spend talking; and when you are on the phone it is harder to do other things. Written channels such as e-mail, text-messaging and IM, by contrast, are discreet and allow contact to be continuous during the day. “Users are showing a growing preference for semi-synchronous writing over synchronous voice,” says Ms Broadbent.

And although the rise of the BlackBerry has prompted concern about work invading private life, the opposite actually seems to be true: private communications are invading the workplace. Workers expect to be plugged into their social networks while at work, whether by e-mail, IM or mobile phone. Last year at a food-processing factory near Geneva, the workers revolted when the director tried to ban mobile phones from the factory floor, and he was forced to relent. Their argument was that they wanted to be reachable during the day, just as people who sit at desks are.

Of course, improvements to mobile networks and the spread of third-generation (3G) and Wi-Fi networks mean that you no longer need to be at your desk to get things done. But Ms Broadbent found that there is not, in fact, much appetite for working while on the move. Indeed, she calls this “the hypermobility myth”. After studying workers who spend more than half their time out of the office—salesmen, consultants, pilots, journalists and photographers—she found that they generally stick to communications while on the move, gathering information that they then work on when they get back to their desks. Hotel rooms and airports are, she says, “not seen as an appropriate environment for substantive work” and are mainly used for e-mail.

Finally, Ms Broadbent found that migrants are the most advanced users of communications technology. A family of immigrant workers from Kosovo living in Switzerland has installed a big computer screen in their living room, for example, and almost every morning they have breakfast with their grandmother back home, via a webcam. It is migrants, rather than geeks, who have emerged as the “most aggressive” adopters of new communications tools, says Ms Broadbent. Dispersed families with strong ties and limited resources have taken to voice-over-internet services, IM and webcams, all of which are cheap or free. They also go online to get news or to download music from home. In the case of a Spanish family living in Switzerland, the daughter often does her homework with her aunt—but over a free Skype video-link, since the aunt lives in Spain.

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# Turning surgery inside out

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From The Economist print edition

Stephen Jeffrey

**Medicine: “Natural orifice” surgery could have a number of benefits, but it requires an entirely new set of tools**

WHICH would you prefer: a surgical procedure that left you in pain, incapacitated and scarred, or one that was virtually painless, involved no recovery time and left no visible scar at all? It may sound too good to be true, but a radical improvement in surgery is the promise held out by a new technique, called “natural-orifice translumenal endosurgery”, or NOTES. Rather than operating on the abdomen by making incisions in the skin, it involves passing flexible instruments through the body's orifices and entering the abdomen from the inside.

One of the most widely studied approaches is “transgastric” surgery, in which the instruments are passed through the mouth and into the stomach. From there, the surgeon cuts a hole in the stomach wall to enter the abdominal cavity and perform the operation. Once it is complete the instruments, along with any removed tissue, are drawn back out through the stomach and mouth and the access incision is stitched up. Similar approaches involve entering through the rectum, the vagina and even the penis.

It may sound somewhat drastic, but the rationale for doing this goes well beyond the desire to avoid leaving a scar. NOTES could have many medical benefits over conventional surgery, and even over laparoscopic or “keyhole” surgery, in which the operation is performed via a small number of external incisions. NOTES could reduce the risk of post-operative infections. It does not require a general anaesthetic, making it an attractive option for the elderly or infirm.

Post-operative convalescence normally involves recovering from the access incisions made in the abdomen. NOTES should mean shorter recovery periods, since the stomach wall has relatively few pain receptors, says Paul Swain, an endosurgeon at Imperial College London who is one of the British pioneers of the technique. “Patients theoretically would be able to go back to work the next day, rather than taking a week or two off,” says Lee Swanstrom, director of minimally invasive surgery at the Oregon Clinic in Portland, Oregon.

## Beyond the keyhole

In recent months several surgical groups have reported early successes using NOTES to carry out procedures such as gall-bladder and cancer-tumour removals, and diagnoses of pancreatic cancer. In animals even more complex procedures have been demonstrated, such as fallopian-tube resections, organ-bypass procedures, reconstructive stomach-reduction procedures and even the draining of coronary arteries. Yet for NOTES to become as widespread and successful as traditional laparoscopic surgery, an arsenal of new surgical instruments will be needed. Answering this call, physicians and medical-device companies are falling over themselves to develop innovative new tools. “There's an explosion in patent filing in this area,” says Dr Swain. “This is one of the great periods of medical

innovation.”

What makes NOTES so difficult is having to carry out surgery via a single and very narrow point of access. Open surgery doesn't have this problem, because the abdomen is laid bare to the surgeon, and even laparoscopic surgery involves placing at least three (and sometimes as many as five) separate instruments into the abdomen from different directions, through different incisions. This makes it possible to triangulate when cutting, sewing or manipulating tissue, says Eugene Chen, the boss of USGI Medical, a surgical-instruments firm based in San Clemente, California. “We have to create instruments that allow us to do the same thing,” he says.

With NOTES, however, all the instruments have to be fed in parallel through a single orifice, and then through a single internal incision. This makes manipulating tissue much more difficult and also limits the surgeon's viewpoint. With existing instruments designed for gastro-intestinal procedures, the camera is attached to the same instrument tip as the grasping and cutting tools, which creates problems. “As soon as you have to move your instrument to grasp something, it changes your view,” says Per-Ola Park, another pioneer of NOTES who is based at Sahlgrenska University Hospital in Gothenburg, Sweden.

Furthermore, surgical tools for NOTES need to be able to manipulate, cut and repair kinds of tissue that are very different from those normally found in the gastro-intestinal tract, says Kurt Bally of Ethicon Endo-Surgery, another surgical-tools firm, based in Cincinnati, Ohio. So Ethicon, USGI and other firms are developing entirely new instruments.

Stephen Jeffrey

One device developed by USGI, called the ShapeLock TransPort, consists of a flexible “access platform” through which other devices can be fed. Other flexible gastro-endo-surgical devices have existed for some time, but what is novel about this latest device is that once in place it allows its shape to be locked. This has huge benefits because normally if you try pushing a tool or lifting some tissue, the entire instrument will move, says Dr Park. But by “rigidising” the device and fixing its position the surgeon can operate from a stable platform that is almost like being inside the abdomen itself. The ShapeLock device was recently used with great success in America's first transgastric procedures on humans.

Having gained access to the abdomen, surgeons need to be able to cut, grasp and suture tissue. To this end Dr Swain has developed a novel form of suturing that involves poking folded T-shaped fasteners through the tissue on either side of a tear or incision, each connected to thread. The fasteners act like anchors so that when the two threads are drawn together the incision or tear closes up. The threads are then fixed together using a small clasp, rather than being tied, and the loose thread is cut. This remarkably simple technique allows suturing to be carried out very effectively with access from only a single flexible scope. USGI has developed a similar approach which uses umbrella-like fasteners, and Olympus Medical Systems, another firm working in the field, has devised a system based on curved hooks.

Hooks and graspers are also being used to manipulate tissue. When passed through flexible scopes, pairs of them can move independently of the tip, so that they can oppose one another, making triangulation possible. This concept has been further elaborated upon by Dmitry Oleynikov at the University of Nebraska Medical Centre, in Omaha. His approach involves the insertion of self-assembling, remote-controlled surgical robots into the body. During insertion these devices are cylindrical in shape, but they then unfurl two opposable arms for grasping and cauterising, and two cameras to give the surgeon stereoscopic vision.

The tiny devices, which are called natural-orifice miniature robots, are tethered to allow the surgeon to control them and to provide power (though Dr Oleynikov has developed wireless versions, too). Dr Oleynikov has already used his robots to carry out a number of operations on pigs, including gall-bladder removals, liver biopsies and the ablation of tumours. He believes it should be possible to place two robots into a patient at the same time. “We have filed a number of patents for devices which are inserted in the mouth and through the stomach,” says Dr Oleynikov. The technology is now being commercialised by Dr Oleynikov's spin-out company, Nebraska Surgical Solutions, which has filed applications with American regulators for experimental use in humans.

Dr Park warns that there is a danger of over-engineering these surgical instruments. Robots can be expensive, he says, and if these new tools are to be successful they will have to be cost-effective. One way to keep costs down but to enable triangulation could simply be to insert devices through more than one natural orifice, he says. “You could have one coming in from the stomach and one coming in from the rectum or vagina,” he suggests. Put perhaps the biggest challenge is to develop better cutting tools, says Dr Park. Ultrasonic scalpels are popular tools in keyhole surgery, but they are rigid—so finding ways to make them flexible enough to insert transgastrically would be a big step forward.

## A surgical gold rush

Someone will probably work out how to do it soon enough. “I can't believe things are accelerating as fast as they are,” says Mr Chen. There are now half a dozen billion-dollar companies developing new instruments for NOTES, he says. The number of patents filed by Ethicon Endo-Surgery has quadrupled over the past ten years, with a particular surge in the past couple of years. This is largely due to NOTES, says Mr Bally.

Needless to say, the needs of the surgeon are not the only reason for this. It has become a “gold rush”, says Dr Park. When laparoscopic surgery was first developed there was a surge in the development of new surgical instruments. This time round everyone is keen not to be left behind. But unlike the free-for-all in laparoscopy, in which many surgeons insisted on using their own proprietary devices, doctors and device-makers today appear to be working together to make tools that will be commercially feasible.

Some companies are canvassing doctors for such partnerships. In October the Natural Orifice Surgery Consortium for Assessment and Research, a joint effort of the American Society for Gastrointestinal Endoscopy and the Society of American Gastrointestinal and Endoscopic Surgeons, offered $1m for NOTES-related research proposals. The money will be provided by Ethicon Endo-Surgery, which is part of Johnson and Johnson.

Amid the hype the fact remains that the medical benefits of NOTES remain unproven, so there is an undercurrent of caution. “It's not a revolution, it's an evolution,” says W. Scott Melvin, the surgeon who carried out the first transgastric procedures in America, and who is also the director of the Centre for Minimally Invasive Surgery at Ohio State University Medical Centre, in Columbus. NOTES is really just the next step beyond laparoscopy, in other words. But, he says, adoption has been slow “because of a lack of adequate instruments”. That now seems to be changing fast.

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# Radio silence

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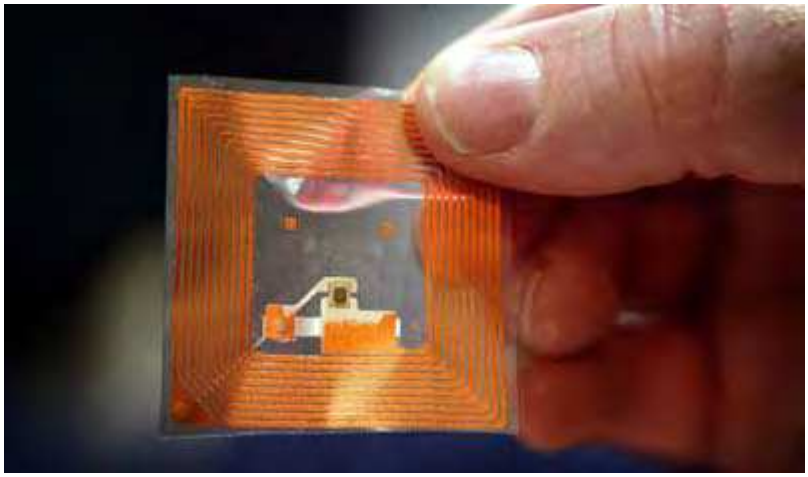
From The Economist print edition

Getty Images



**Wireless technology: It was hailed as a breakthrough that would revolutionise logistics. What ever happened to RFID?**

IT LOOKED like a promising opportunity in a ravaged industry. Back in 2003, in the wake of the dotcom crash, the internet had yet to get its second wind and technology shares were languishing. Amid the gloom one of the few bright prospects was radio frequency identification (RFID), an electronic-tagging technology hailed as a way to improve efficiency in commercial and military supply-chains.

The idea was simple. By tagging items and containers with tiny chips that can be interrogated wirelessly from a few metres away, companies would be able to streamline their distribution and delivery systems. RFID tags would act as wireless bar-codes on everything from cereal boxes to medicine bottles to expensive military hardware, enabling suppliers, retailers and government agencies to track inventory more efficiently and cut costs.

Wal-Mart, the world's biggest retailer, and America's Department of Defence, one of the world's biggest purchasers, were so sold on the idea that in 2003 they decreed that their largest suppliers had to incorporate RFID tags into the goods they delivered. For the Department of Defence alone, the mandate affected 60,000 suppliers. With the backing of such heavyweights to catalyse the market, it was not surprising that RFID was widely regarded by many in technology as the “next big thing”. RFID was reassuringly coupled to the solid, real-world economy, rather than to dotcom intangibles such as “eyeballs” and “mindshare”.

In 2004 the Yankee Group, a consultancy, predicted that by 2007 the expanding RFID industry would affect 4m jobs in America alone; America's Food and Drug Administration (FDA) predicted that most cases and pallets of prescription drugs would contain RFID tags by 2007; and a study by LogicaCMG, a systems-integration firm, suggested that big European retailers such as Tesco in Britain and Metro in Germany would have completed large-scale RFID implementations by 2007.

Despite such predictions, however, RFID has not lived up to expectations. The Wal-Mart mandate has been followed by others from American retail giants such as Target and Best Buy, but their suppliers—the companies that have to foot the bill for RFID upgrades—are far less keen on the technology, and technical problems have delayed its introduction. Mindful of the problems encountered by other early proponents of the technology, the FDA has called for a voluntary tagging “pedigree” among suppliers to combat counterfeit drugs entering the supply chain, but has stopped short of insisting on RFID.

## Standard deviation

Meanwhile, in Europe Tesco and other retailers have dabbled with RFID tagging, but full-scale use is a long way off. After floating the idea of an RFID-based customer-loyalty card, Metro abandoned the scheme under pressure from privacy-rights groups. Robert W. Baird, a broker, predicted that demand for the most popular kind of RFID tags in 2006 would be 250m-350m units. The number employed was less than half that.

What went wrong? Aside from the over-optimism common to many new technologies and the concerns of privacy activists, RFID did badly for two reasons. The first was that a veritable Babel of incompatible standards grew up. Despite the simplicity of the technology in the tag-and-reader system, which dates back to the aircraft transponders used in the second world war, RFID systems needing co-operation between many links in a supply chain (called “open loop” systems) proved hard to set up. The lack of a common standard for tags and readers to begin with, and the later battle between various high frequency (HF) and ultra-high frequency (UHF) products meant you could not be sure the data on a tag could be read all along the supply chain.

The ratification at the end of 2004 of a global “Gen2” standard for UHF RFID tags defined a much-needed common language for the industry, but much later than expected. Legal wrangling over patent infringement was partly to blame for the delay and users then had to ensure that all readers, tags and related software were compatible with the new standard—which was expensive and time-consuming. Carl Brown of SimplyRFID, a supplier of tags and software, says his firm was one of many that found itself lumbered with piles of unsold equipment based on obsolete first-generation RFID technology.

Even with the new standard in place, regional and industry-specific variations meant that getting all RFID devices to communicate with each other proved difficult. Last year the European Union specified that member countries should make UHF the spectrum of choice for RFID, but its definition of UHF is different from the one in America, which is in turn different from that in Japan. So making RFID gear that works anywhere in the world is extremely difficult. And standards do not solve everything: RFID, like any other technology, is subject to the laws of physics. Metals and liquids can cause interference that prevents tags from being read properly in some situations.

At least the price of tags and readers has steadily declined since the implementation of the Gen2 standard. Earlier this year Intel, the world's biggest chipmaker, said it had developed a new chip especially for UHF readers, which should help to bring the cost of RFID systems down even further. And mergers among RFID firms in recent years have made it easier to source what you need.

But the difficult task remains of changing systems and processes to make them RFID-compatible. This involves integrating the individual tags into pallets, crates and cages, updating back-office software and processes, and then training staff to use it all properly. According to Mr Brown, the best attended event at the Department of Defence's annual RFID summit this year was the session on the basics of using the technology to meet the department's requirements.

It is not just technical concerns that have hindered the deployment of RFID. A more fundamental obstacle is the lack of a clear business case. For giants such as Wal-Mart and the Department of Defence RFID is hugely attractive since it would allow them to trim costs by improving the efficiency of goods deliveries. By some estimates, managing inventories with RFID to eliminate “stockouts” (when a product goes out of stock) could add 3-4% to Wal-Mart's annual sales.

## Show me the money

The language from Wal-Mart and the Department of Defence on the requirement for RFID was “originally very aggressive”, says Michael Liard of ABI Research, a consultancy. But for the consumer-goods companies that make and supply the stuff on Wal-Mart's shelves, the attractions of RFID are unclear. Given that their profit margins are already razor-thin, these companies have been hesitant to make the large investments needed, particularly since most of the benefits will accrue to retailers, not suppliers.

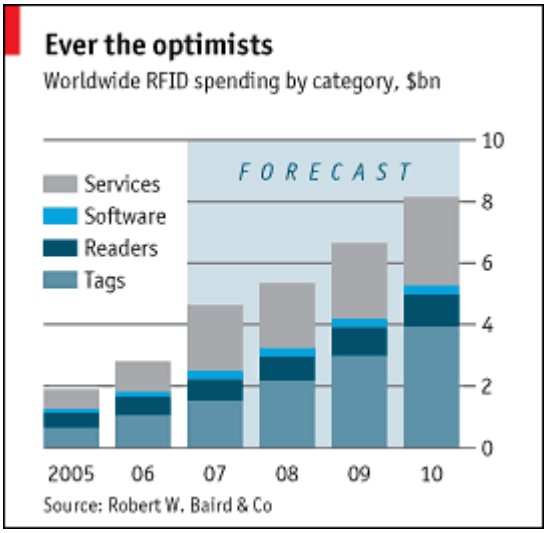
The lack of return on investment from open-loop RFID applications, in which several organisations use the technology to co-ordinate their operations, is perhaps the single biggest obstacle, says Reik Read of Baird. Without a clear business rationale, he says, the market depends on nothing more than “Wal-Mart telling people what to do”. And although the price of RFID tags has fallen, from around $2 each in 1999 to around $0.10-0.15 today, suppliers still cannot see the point in adopting the technology. A recent report from IDC, a market-research firm, found that the hype around RFID continues, but is accompanied by a groundswell of “more visible negative comments” as companies try RFID without clear business

cases, or simply to meet the minimum requirements of their customers.

It is not all bad news. Some suppliers and retailers of expensive retail items, such as designer clothes, prescription drugs and consumer electronics, are beginning to see the cost of a tag as worthwhile, because it can help reduce losses from counterfeiting or theft. RFID technology is also widely used in wireless toll passes for bridges and tunnels and in contactless travel passes.

More credible business cases are emerging for “closed-loop” RFID systems, in which a company uses the technology to track goods within its own warehouses and factories, without the need to co-ordinate with other firms. Since the beginning of 2007, firms including Audi, Sony and Dole Food have all set up closed-loop RFID systems and in March the port of Oakland in California created an RFID system to track delivery trucks entering its international terminal.

In open-loop applications, the focus is beginning to shift beyond simple stock-taking and inventory control. RFID tags can, for example, be connected to external sensors in order to relay valuable information about sensitive cargo in transit, such as temperature and humidity. In the past year Chiquita, a global distributor of fresh produce, has been testing a system based on RFID tags with built-in temperature sensors to monitor the condition of perishable cargo in transit. And despite its early heavy-handedness, Wal-Mart is now getting more involved with the RFID implementations of its partners to ensure they have an incentive to adopt the technology, says Mr Liard.




Along with Intel, big technology companies are showing greater interest in RFID, with giants such as SAP and IBM developing products to gather and organise the huge amounts of data associated with RFID systems. But nobody is predicting a sudden breakthrough. Mr Read says that RFID is now making progress a small step at a time. But he expects faster growth over the next three years, causing the global RFID market to swell from $2.8 billion in 2006 to $8.1 billion by 2010 (see chart). With many teething problems overcome, this might well happen. But similar claims have been made before.

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

# The truth about recycling

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Reuters

**As the importance of recycling becomes more apparent, questions about it linger. Is it worth the effort? How does it work? Is recycling waste just going into a landfill in China? Here are some answers**

IT IS an awful lot of rubbish. Since 1960 the amount of municipal waste being collected in America has nearly tripled, reaching 245m tonnes in 2005. According to European Union statistics, the amount of municipal waste produced in western Europe increased by 23% between 1995 and 2003, to reach 577kg per person. (So much for the plan to reduce waste per person to 300kg by 2000.) As the volume of waste has increased, so have recycling efforts. In 1980 America recycled only 9.6% of its municipal rubbish; today the rate stands at 32%. A similar trend can be seen in Europe, where some countries, such as Austria and the Netherlands, now recycle 60% or more of their municipal waste. Britain's recycling rate, at 27%, is low, but it is improving fast, having nearly doubled in the past three years.

Even so, when a city introduces a kerbside recycling programme, the sight of all those recycling lorries trundling around can raise doubts about whether the collection and transportation of waste materials requires more energy than it saves. “We are constantly being asked: Is recycling worth doing on environmental grounds?” says Julian Parfitt, principal analyst at Waste & Resources Action Programme (WRAP), a non-profit British company that encourages recycling and develops markets for recycled materials.

Studies that look at the entire life cycle of a particular material can shed light on this question in a particular case, but WRAP decided to take a broader look. It asked the Technical University of Denmark and the Danish Topic Centre on Waste to conduct a review of 55 life-cycle analyses, all of which were selected because of their rigorous methodology. The researchers then looked at more than 200 scenarios, comparing the impact of recycling with that of burying or burning particular types of waste material. They found that in 83% of all scenarios that included recycling, it was indeed better for the environment.

Based on this study, WRAP calculated that Britain's recycling efforts reduce its carbon-dioxide emissions by 10m-15m tonnes per year. That is equivalent to a 10% reduction in Britain's annual carbon-dioxide emissions from transport, or roughly equivalent to taking 3.5m cars off the roads. Similarly, America's Environmental Protection Agency estimates that recycling reduced the country's carbon emissions by 49m tonnes in 2005.

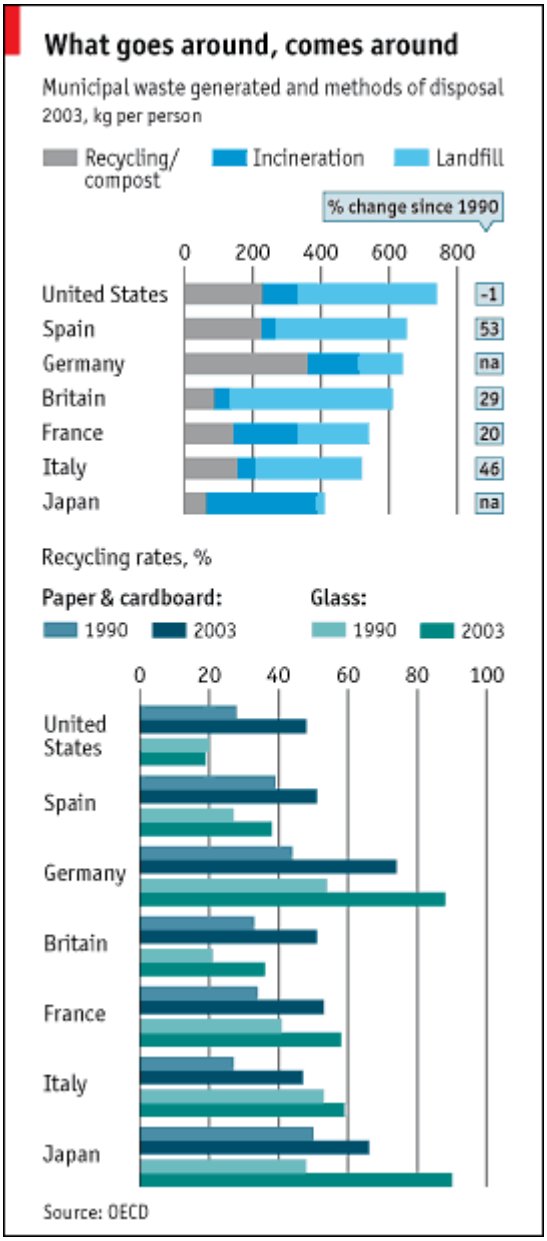
Recycling has many other benefits, too. It conserves natural resources. It also reduces the amount of waste that is buried or burnt, hardly ideal ways to get rid of the stuff. (Landfills take up valuable space and emit methane, a potent greenhouse gas; and although incinerators are not as polluting as they once were, they still produce noxious emissions, so people dislike having them around.) But perhaps the most valuable benefit of recycling is the saving in energy and the reduction in greenhouse gases and pollution that result when scrap materials are substituted for virgin feedstock. “If you can use recycled materials, you don't have to mine ores, cut trees and drill for oil as much,” says Jeffrey Morris of Sound Resource Management, a consulting firm based in Olympia, Washington.

Extracting metals from ore, in particular, is extremely energy-intensive. Recycling aluminium, for example, can reduce energy consumption by as much as 95%. Savings for other materials are lower but still substantial: about 70% for plastics, 60% for steel, 40% for paper and 30% for glass. Recycling also reduces emissions of pollutants that can cause smog, acid rain and the contamination of waterways.

## A brief history of recycling

The virtue of recycling has been appreciated for centuries. For thousands of years metal items have been recycled by melting and reforming them into new weapons or tools. It is said that the broken pieces of the Colossus of Rhodes, a statue deemed one of the seven wonders of the ancient world, were recycled for scrap. During the industrial revolution, recyclers began to form businesses and later trade associations, dealing in the collection, trade and processing of metals and paper. America's Institute of Scrap Recycling Industries (ISRI), a trade association with more than 1,400 member companies, traces its roots back to one such organisation founded in 1913. In the 1930s many people survived the Great Depression by peddling scraps of metal, rags and other items. In those days reuse and recycling were often economic necessities. Recycling also played an important role during the second world war, when scrap metal was turned into weapons.

As industrial societies began to produce ever-growing quantities of garbage, recycling took on a new meaning. Rather than recycling materials for purely economic reasons, communities began to think about how to reduce the waste flow to landfills and incinerators. Around 1970 the environmental movement sparked the creation of America's first kerbside collection schemes, though it was another 20 years before such programmes really took off.




In 1991 Germany made history when it passed an ordinance shifting responsibility for the entire life cycle of packaging to producers. In response, the industry created Duales System Deutschland (DSD), a company that organises a separate waste-management system that exists alongside public rubbish-collection. By charging a licensing fee for its “green dot” trademark, DSD pays for the collection, sorting and recycling of packaging materials. Although the system turned out to be expensive, it has been highly influential. Many European countries later adopted their own recycling initiatives incorporating some degree of producer responsibility.

In 1987 a rubbish-laden barge cruised up and down America's East Coast looking for a place to unload, sparking a public discussion about waste management and serving as a catalyst for the country's growing recycling movement. By the early 1990s so many American cities had established recycling programmes that the resulting glut of materials caused the market price for kerbside recyclables to fall from around $50 per ton to about $30, says Dr Morris, who has been tracking prices for recyclables in the Pacific Northwest since the mid-1980s. As with all commodities, costs for recyclables fluctuate. But the average price for kerbside materials has since slowly increased to about $90 per ton.

Even so, most kerbside recycling programmes are not financially self-sustaining. The cost of collecting, transporting and sorting materials generally exceeds the revenues generated by selling the recyclables, and is also greater than the disposal costs. Exceptions do exist, says Dr Morris, largely near ports in dense urban areas that charge high fees for landfill disposal and enjoy good market conditions for the sale of recyclables.

## Sorting things out

Originally kerbside programmes asked people to put paper, glass and cans into separate bins. But now the trend is toward co-mingled or “single stream” collection. About 700 of America's 10,000 kerbside programmes now use this approach, says Kate Krebs, executive director of America's National Recycling Coalition. But the switch can make people suspicious: if there is no longer any need to separate different materials, people may conclude that the waste is simply being buried or burned. In fact, the switch towards single-stream collection is being driven by new technologies that can identify and sort the various materials with little or no human intervention. Single-stream collection makes it more convenient for householders to recycle, and means that more materials are diverted from the waste stream.

San Francisco, which changed from multi to single-stream collection a few years ago, now boasts a recycling rate of 69%—one of the highest in America. With the exception of garden and food waste, all the city's kerbside recyclables are sorted in a 200,000-square-foot facility that combines machines with the manpower of 155 employees. The $38m plant, next to the San Francisco Bay, opened in 2003. Operated by Norcal Waste Systems, it processes an average of 750 tons of paper, plastic, glass and metals a day.

The process begins when a truck arrives and dumps its load of recyclables at one end of the building. The materials are then piled on to large conveyer belts that transport them to a manual sorting station. There, workers sift through everything, taking out plastic bags, large pieces of cardboard and other items that could damage or obstruct the sorting machines. Plastic bags are especially troublesome as they tend to get caught in the spinning-disk screens that send weightier materials, such as bottles and cans, down in one direction and the paper up in another.

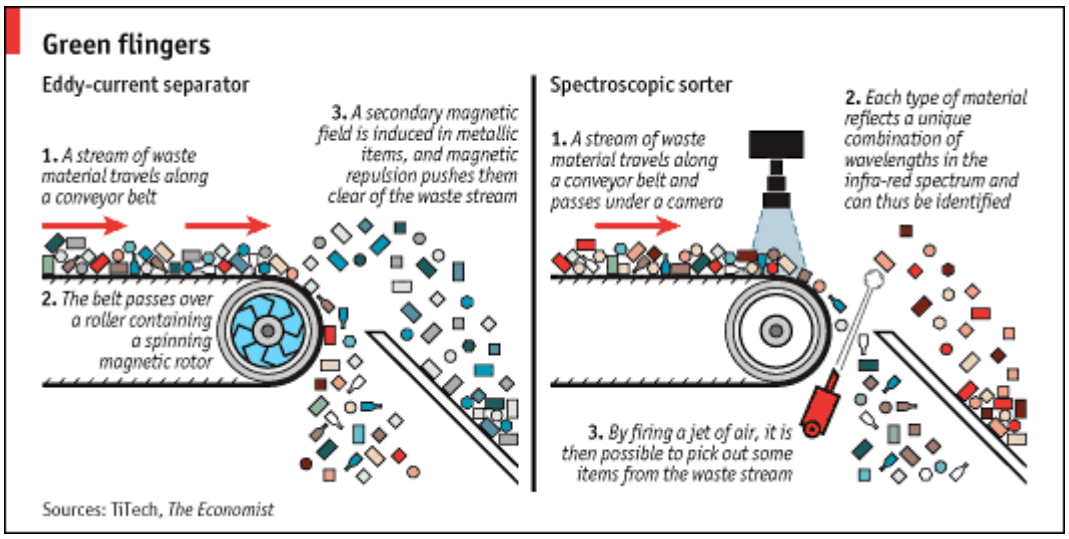
Corrugated cardboard is separated from mixed paper, both of which are then baled and sold. Plastic bottles and cartons are plucked out by hand. The most common types, PET (type 1) and HDPE (type 2), are collected separately; the rest go into a mixed-plastics bin.

Next, a magnet pulls out any ferrous metals, typically tin-plated or steel cans, while the non-ferrous metals, mostly aluminium cans, are ejected by eddy current. Eddy-current separators, in use since the early 1990s, consist of a rapidly revolving magnetic rotor inside a long, cylindrical drum that rotates at a slower speed. As the aluminium cans are carried over this drum by a conveyer belt, the magnetic field from the rotor induces circulating electric currents, called eddy currents, within them. This creates a secondary magnetic field around the cans that is repelled by the magnetic field of the rotor, literally ejecting the aluminium cans from the other waste materials.

Finally, the glass is separated by hand into clear, brown, amber and green glass. For each load, the entire sorting process from start to finish takes about an hour, says Bob Besso, Norcal's recycling-programme manager for San Francisco.

Although all recycling facilities still employ people, investment is increasing in optical sorting technologies that can separate different types of paper and plastic. Development of the first near-infra-red-based waste-sorting systems began in the early 1990s. At the time Elopak, a Norwegian producer of drink cartons made of plastic-laminated cardboard, worried that it would have to pay a considerable fee to meet its producer responsibilities in Germany and other European countries. To reduce the overall life-cycle costs associated with its products, Elopak set out to find a way to automate the sorting of its cartons. The company teamed up with SINTEF, a Norwegian research centre, and in 1996 sold its first unit in Germany. The technology was later spun off into a company now called TiTech.

TiTech's systems—more than 1,000 of which are now installed worldwide—rely on spectroscopy to identify different materials. Paper and plastic items are spread out on a conveyor belt in a single layer. When illuminated by a halogen lamp, each type of material reflects a unique combination of wavelengths in the infra-red spectrum that can be identified, much like a fingerprint. By analysing data from a sensor that detects light in both the visible and the near-infra-red spectrum, a computer is able to determine the colour, type, shape and position of each item. Air jets are then activated to push particular items from one conveyor belt to another, or into a bin. Numerous types of paper, plastic or combinations thereof can thus be sorted with up to 98% accuracy.




For many materials the process of turning them back into useful raw materials is straightforward: metals are shredded into pieces, paper is reduced to pulp and glass is crushed into cullet. Metals and glass can be remelted almost indefinitely without any loss in quality, while paper can be recycled up to six times. (As it goes through the process, its fibres get shorter and the quality deteriorates.)

Plastics, which are made from fossil fuels, are somewhat different. Although they have many useful properties—they are flexible, lightweight and can be shaped into any form—there are many different types, most of which need to be processed separately. In 2005 less than 6% of the plastic from America's municipal waste stream was recovered. And of that small fraction, the only two types recycled in significant quantities were PET and HDPE. For PET, food-grade bottle-to-bottle recycling exists. But plastic is often “down-cycled” into other products such as plastic lumber (used in place of wood), drain pipes and carpet fibres, which tend to end up in landfills or incinerators at the end of their useful lives.

Even so, plastics are being used more and more, not just for packaging, but also in consumer goods such as cars, televisions and personal computers. Because such products are made of a variety of materials and can contain multiple types of plastic, metals (some of them toxic), and glass, they are especially difficult and expensive to dismantle and recycle.

Europe and Japan have initiated “take back” laws that require electronics manufacturers to recycle their products. But in America only a handful of states have passed such legislation. That has caused problems for companies that specialise in recycling plastics from complex waste streams and depend on take-back laws for getting the necessary feedstock. Michael Biddle, the boss of MBA Polymers, says the lack of such laws is one of the reasons why his company operates only a pilot plant in America and has its main facilities in China and Austria.

Much recyclable material can be processed locally, but ever more is being shipped to developing nations, especially China. The country has a large appetite for raw materials and that includes scrap metals, waste paper and plastics, all of which can be cheaper than virgin materials. In most cases, these waste materials are recycled into consumer goods or packaging and returned to Europe and America via container ships. With its hunger for resources and the availability of cheap labour, China has become the largest importer of recyclable materials in the world.

## The China question

But the practice of shipping recyclables to China is controversial. Especially in Britain, politicians have voiced the concern that some of those exports may end up in landfills. Many experts disagree. According to Pieter van Beukering, an economist who has studied the trade of waste paper to India and waste plastics to China: “as soon as somebody is paying for the material, you bet it will be recycled.”

In fact, Dr van Beukering argues that by importing waste materials, recycling firms in developing countries are able to build larger factories and achieve economies of scale, recycling materials more efficiently and at lower environmental cost. He has witnessed as much in India, he says, where dozens of inefficient, polluting paper mills near Mumbai were transformed into a smaller number of far more productive and environmentally friendly factories within a few years.

Still, compared with Western countries, factories in developing nations may be less tightly regulated, and the recycling industry is no exception. China especially has been plagued by countless illegal-waste imports, many of which are processed by poor migrants in China's coastal regions. They dismantle and recycle anything from plastic to electronic waste without any protection for themselves or the environment.

The Chinese government has banned such practices, but migrant workers have spawned a mobile cottage industry that is difficult to wipe out, says Aya Yoshida, a researcher at Japan's National Institute for Environmental Studies who has studied Chinese waste imports and recycling practices. Because this type of industry operates largely under the radar, it is difficult to assess its overall impact. But it is clear that processing plastic and electronic waste in a crude manner releases toxic chemicals, harming people and the environment—the opposite of what recycling is supposed to achieve.

Under pressure from environmental groups, such as the Silicon Valley Toxics Coalition, some computer-makers have established rules to ensure that their products are recycled in a responsible way. Hewlett-Packard has been a leader in this and even operates its own recycling factories in California and Tennessee. Dell, which was once criticised for using prison labour to recycle its machines, now takes back its old computers for no charge. And last month Steve Jobs detailed Apple's plans to eliminate the use of toxic substances in its products.

Far less controversial is the recycling of glass—except, that is, in places where there is no market for it. Britain, for example, is struggling with a mountain of green glass. It is the largest importer of wine in the world, bringing in more than 1 billion litres every year, much of it in green glass bottles. But with only a tiny wine industry of its own, there is little demand for the resulting glass. Instead what is needed is clear glass, which is turned into bottles for spirits, and often exported to other countries. As a result, says Andy Dawe, WRAP's glass-technology manager, Britain is in the “peculiar situation” of having more green glass than it has production capacity for.

Britain's bottle-makers already use as much recycled green glass as they can in their furnaces to produce new bottles. So some of the surplus glass is down-cycled into construction aggregates or sand for filtration systems. But WRAP's own analysis reveals that the energy savings for both appear to be “marginal or even disadvantageous”. Working with industry, WRAP has started a new programme called GlassRite Wine, in an effort to right the imbalance. Instead of being bottled at source, some wine is now imported in 24,000-litre containers and then bottled in Britain. This may dismay some wine connoisseurs, but it solves two problems, says Mr Dawe: it reduces the amount of green glass that is imported and puts what is imported to good use. It can also cut shipping costs by up to 40%.

## The future of recycling

This is an unusual case, however. More generally, one of the biggest barriers to more efficient recycling is that most products were not designed with recycling in mind. Remedying this problem may require a complete rethinking of industrial processes, says William McDonough, an architect and the co-author of a book published in 2002 called “Cradle to Cradle: Remaking the Way We Make Things”. Along with Michael Braungart, his fellow author and a chemist, he lays out a vision for establishing “closed-loop” cycles where there is no waste. Recycling should be taken into account at the design stage, they argue, and all materials should either be able to return to the soil safely or be recycled indefinitely. This may sound like wishful thinking, but Mr McDonough has a good pedigree. Over the years he has worked with companies including Ford and Google.

An outgrowth of “Cradle to Cradle” is the Sustainable Packaging Coalition, a non-profit working group that has developed guidelines that look beyond the traditional benchmarks of packaging design to emphasise the use of renewable, recycled and non-toxic source materials, among other things. Founded in 2003 with just nine members, the group now boasts nearly 100 members, including Target, Starbucks and Estée Lauder, some of which have already begun to change the design of their packaging.

Sustainable packaging not only benefits the environment but can also cut costs. Last year Wal-Mart, the world's biggest retailer, announced that it wanted to reduce the amount of packaging it uses by 5% by 2013, which could save the company as much as $3.4 billion and reduce carbon-dioxide emissions by 667,000 tonnes. As well as trying to reduce the amount of packaging, Wal-Mart also wants to recycle more of it. Two years ago the company began to use an unusual process, called the “sandwich bale”, to collect waste material at its stores and distribution centres for recycling. It involves putting a layer of cardboard at the bottom of a rubbish compactor before filling it with waste material, and then putting

another layer of cardboard on top. The compactor then produces a “sandwich” which is easier to handle and transport, says Jeff Ashby of Rocky Mountain Recycling, who invented the process for Wal-Mart. As well as avoiding disposal costs for materials it previously sent to landfill, the company now makes money by selling waste at market prices.

EPA

**It does get recycled, honest**

Evidently there is plenty of scope for further innovation in recycling. New ideas and approaches will be needed, since many communities and organisations have set high targets for recycling. Europe's packaging directive requires member states to recycle 60% of their glass and paper, 50% of metals and 22.5% of plastic packaging by the end of 2008. Earlier this year the European Parliament voted to increase recycling rates by 2020 to 50% of municipal waste and 70% of industrial waste. Recycling rates can be boosted by charging households and businesses more if they produce more rubbish, and by reducing the frequency of rubbish collections while increasing that of recycling collections.

Meanwhile a number of cities and firms (including Wal-Mart, Toyota and Nike) have adopted zero-waste targets. This may be unrealistic but Matt Hale, director of the office of solid waste at America's Environmental Protection Agency, says it is a worthy goal and can help companies think about better ways to manage materials. It forces people to look at the entire life-cycle of a product, says Dr Hale, and ask questions: Can you reduce the amount of material to begin with? Can you design the product to make recycling easier?

If done right, there is no doubt that recycling saves energy and raw materials, and reduces pollution. But as well as trying to recycle more, it is also important to try to recycle better. As technologies and materials evolve, there is room for improvement and cause for optimism. In the end, says Ms Krebs, “waste is really a design flaw.”

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

# Taking storage to the next dimension

Jun 7th 2007
From The Economist print edition

**Computing: After years of development, holographic data-storage systems are finally ready to go on sale**

Gillian Blease

THE digital age has turned people and companies into data hoarders. Home computers bulge with music tracks, photographs, videos and e-mails; and government regulations and industry trends mean that companies, financial institutions and medical organisations are piling up information on an unprecedented scale. For really large amounts of data, storage capacity is no longer measured in gigabytes, terabytes or petabytes, but rather by the size of the warehouses needed for the discs, cartridges or tapes that carry them.

But a new storage technology, which will go on sale in the next few weeks after years of development, can squeeze more onto a small disc or cartridge than ever before. With the potential to store hundreds of times more data on a disc than today's DVDs or even the latest high-capacity Blu-ray and HD-DVD discs, holographic storage is about to hit the market.

Unlike DVDs, which store data in thin layers just beneath the surface of the disc, holographic storage encodes information in three dimensions, within the volume of the disc. This will enable the first holographic discs to store a colossal 300 gigabytes of data—12 times more than the latest Blu-ray discs and 60 times more than a standard DVD. And within a few years this capacity is expected to increase more than fivefold to 1.6 terabytes (1,600 gigabytes) of data—enough to store five seasons of a television drama, in high-definition video, on one disc. But as is so often the case with new storage formats, rival standards are under development.

That said, the various technologies work on the same basic holographic principle, pioneered in 1963 by Pieter van Heerden of Polaroid Research Labs in Cambridge, Massachusetts. Digital information is stored in a holographic material in much the same way that pictures are stored in traditional holograms. And just as holographic images are able to show slightly different perspectives of an object or scene, taken from slightly different viewpoints, holographic data-storage systems can store multiple “pages” of digital data at different angles in the material.

Each page consists of a pattern of 1m or so black and white squares in a grid-like pattern, representing the zeroes and ones of digital information. This pattern is displayed on a small flat-panel display, which is illuminated by a laser beam so that the pattern is encoded onto the beam. This “signal beam” then meets a separate reference beam, and where the two beams intersect they create an interference pattern in a light-sensitive medium. A chemical reaction occurs so that the interference pattern, or hologram, is permanently recorded into the medium.

The signal beam can be recreated by illuminating the medium with a beam identical to the original reference beam. The resulting pattern is projected onto a detector and the entire page of 1m bits can be read out at once. Crucially, hundreds of such patterns, and hence hundreds of pages of data, can be superimposed within a given volume of holographic material, provided each is recorded at a slightly different angle (see diagram). Hence the massive storage capacity.

## End of the reel for tape?

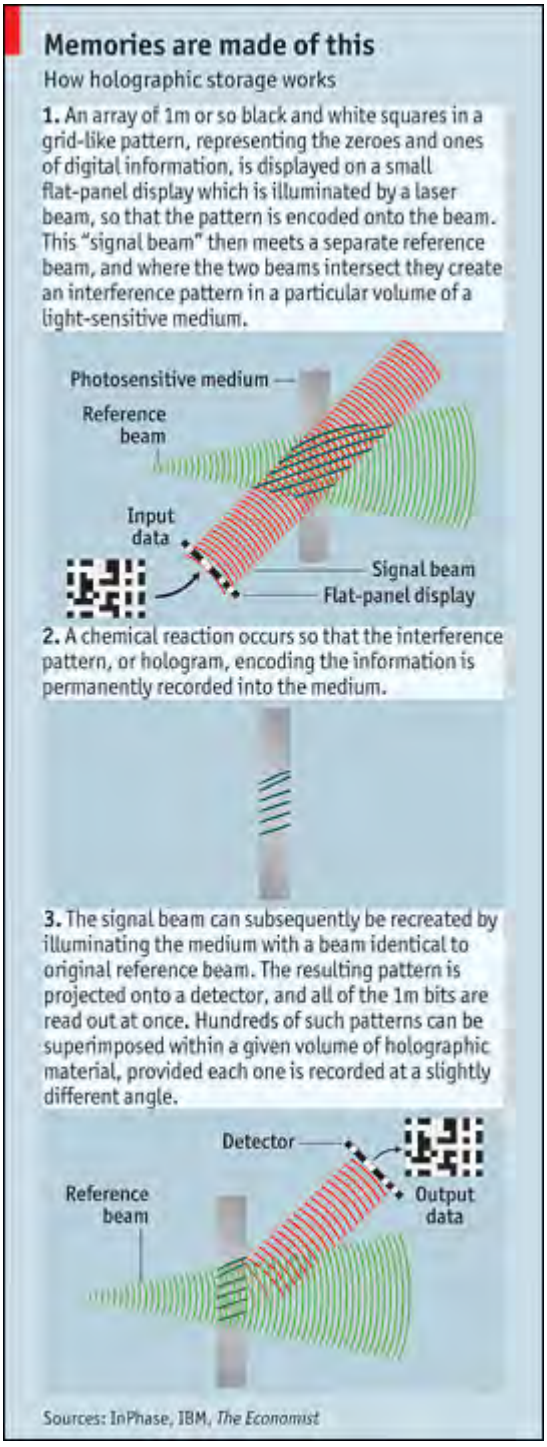
All this could be good news for companies maintaining mountains of data, says Mukul Krishna, an analyst at Frost & Sullivan who specialises in digital media. “With the same footprint, they will literally be able to triple or quadruple their ability to store data,” he says. At the moment the mass-storage medium of choice is magnetic tape, which has the advantage of being cheap. But magnetic tapes must be carefully stored and managed, which can include periodically copying important information from old tapes onto new ones to ensure that it can still be read. And as the volume of data being stored continues to increase, the cost of maintaining tape archives is growing fast, says Mr Krishna. The average installed storage capacity of a Fortune 1000 company grew from 198 terabytes in early 2005 to 680 terabytes in October 2006, according to figures from Deloitte, a consultancy.

In particular, corporate-governance regulations in many parts of the world require companies to archive electronic records for many years for compliance purposes. “E-mail archiving alone is one of the largest applications and expenses facing many IT departments,” says Liz Murphy of InPhase Technologies, a spin-out from Bell Labs based in Longmont, Colorado, which will be the first company to launch a holographic disc-drive this summer. Another big trend, she says, is the growth in storage of financial records, scientific data, medical images and other records that do not necessarily need to be archived, but may need to be called up quickly. This is possible using libraries in which special robots load cassettes into tape drives when required, but a holographic disc would be much quicker.

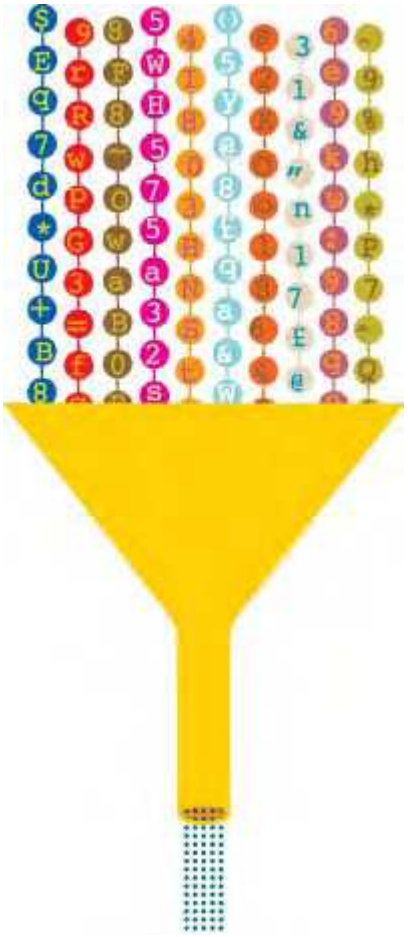
The emergence of high-definition video formats could also provide a new market for the technology, as television-production companies and broadcasters grapple with a sudden and dramatic increase in their storage requirements. InPhase is testing its first holographic disc-drive, called the Tapestry 900, in conjunction with partners such as Ikegami Tsushinki, a Japanese firm which makes video cameras for the television industry. The new technology allows Ikegami to dump all unedited footage from its cameras onto holographic discs.

Gillian Blease

As well as being holographic, the Tapestry 900 drive works differently from traditional disc-based systems. Rather than spinning continuously like a DVD or CD, its cartridge-based discs remain stationary as pages of data are written onto a given section of the disc from 350 different angles. The disc is then rotated very slightly so that the next batch of pages can be written. This might sound slow compared with rival technologies, but it is in fact very fast because the page-based approach means that rather than being written and read bit by bit, information is transferred in batches of around a million bits at a time, says Lisa Dhar of InPhase. Accordingly,



InPhase's system can read and write at a rate of 160 megabits per second.



Although it is initially aiming at the corporate market, InPhase hopes its technology will eventually be available in consumer products, too. As well as offering much higher capacities than today's high-definition disc formats (Blu-ray and HD-DVD), holographic discs ought to be more difficult to counterfeit, which should appeal to the film industry. InPhase is developing the replication technology needed for the mass distribution of films, games and software. It is also working on ways to make its holographic discs re-writable. At the moment they are a “write once, read many times” (WORM) technology, like CD-R and DVD-R; once written, data cannot be deleted or changed.

But in consumer markets InPhase could face competition. DCE Aprilis, a company spun out of Polaroid in 1999 and then acquired by Dow Corning, is licensing its holographic-storage technology to several big consumer-electronics firms. And a start-up called Optware has devised its own holographic-disc format, called HVD, which is of course completely incompatible with InPhase's system. Products based on these rival technologies are still some way off, but their backers claim that they are technically superior to InPhase's approach. Both DCE Aprilis and Optware claim to have achieved a data-transfer rate of one gigabit per second, which makes InPhase's technology seem slow—though it is expected to reach higher speeds in future.

## Just an illusion?

Mr Krishna maintains, however, that the “killer application” for the technology is nevertheless in mass storage for the corporate market. Quite apart from the fact that it takes years for consumer-electronics companies to agree and adopt new standards, there is simply more money to be made from selling to businesses, he says. Tellingly, as well as pushing the HVD format, Optware is also developing a holographic-storage system for corporate use that stores information on rectangular cards rather than discs.

But despite plans to launch products in early 2006, Optware has yet to produce anything. And some observers remain doubtful that holographic storage will be commercially viable any time soon. IBM, once a leader in the field, has decided to concentrate on improving existing magnetic-tape systems instead, says Matthias Kaiserswerth, director of IBM's Zurich Research Laboratory in Switzerland. InPhase's first drive will cost $18,000, and each 300-gigabyte cartridge will cost a further $180. Holographic-storage technology certainly works and has all kinds of potential uses. But until the prices come down, demand for this unusual new technology could be all too holographic in nature: apparently there, but upon closer inspection proving to be only a mirage.

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# Are you talking to me?

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**Speech recognition: Technology that understands human speech could be about to enter the mainstream**

Christian Montenegro

ALEX CASTRO has been patient. Ever since his teenage years, when he volunteered to work on speech-recognition projects during an internship at AT&T Bell Labs, Mr Castro has been waiting for the technology to work well enough to become widely adopted. “I always felt that voice recognition was a technology that would someday be applied to mainstream uses,” he says. While waiting for “someday” to arrive, the 32-year-old had time to finish his college degree, earn a Masters at Cornell, do a stint at Microsoft's MSN Entertainment business and oversee the launch of Amazon's Mechanical Turk online marketplace. Now Mr Castro has finally started his own firm, called Pluggd, a podcast directory with a nifty audio search-engine that can search audio clips (and the soundtracks of video clips) for keywords, using speech-recognition technology. “This is a huge market opportunity,” he says.

It is not just Mr Castro who has been waiting. Speech recognition has taken a long time to move from the laboratory to the marketplace. Researchers at Bell Labs first developed a system that recognised numbers spoken over a telephone in 1952, but in the ensuing decades the technology has generally offered more promise than product, more science fiction than function. For years, call-centre and dictation applications have been better known for the frustration they cause than for their ability to recognise words.

Thanks to technical improvements and carefully chosen applications, however, speech recognition finally seems to be catching on in mobile phones, cars and search applications, and its effectiveness in call centres and dictation has improved. “There is good infrastructure, there are industry standards and accuracy is good enough that it's no longer a painful experience interacting with a voice application,” says Tom Furlong of Granite Ventures, a venture-capital firm based in San Francisco. “A number of companies are thinking about voice for the first time.”

Optimistic forecasts from market-research firms also suggest that the technology is on the rise. The market for speech recognition is dominated by server-based systems used in call centres, directory-assistance services and voice portals (speech-driven data services that supply news, weather forecasts, share prices, travel information and so on). Companies spent $1.2 billion on such systems in 2005, and this is forecast to grow by 22% a year to reach $3.2 billion by 2010, according to Datamonitor, a consultancy. The market for embedded speech-recognition technology, which goes into mobile phones, car-navigation systems and so on, will grow from $46m in 2006 to $239m in 2011, says Dan Miller of Opus Research, a consultancy based in San Francisco.

## Find me pizza, now

An area of great interest at the moment is in that of voice-driven “mobile search” technology, in which search terms are spoken into a mobile device rather than typed in using a tiny keyboard. With technology giants Google and Microsoft getting into the picture, “we have the makings of very robust mobile-search capabilities,” says Mr Miller. Microsoft acquired Tellme Networks, a voice-recognition company based in Mountain View, California, in March. The software giant plans to use Tellme's software to enable users of mobile phones and hand-held computers to search the internet using voice commands.

“Voice can serve as a mouse for the mobile internet and bypass the arduous keypad interface,” says Seamus McAteer of M:Metrics, a market-research firm. “The appeal of speech is to flatten menus and to

handle names that don't lend themselves to a ten-digit keypad.” In February Nuance Communications, one of the leading firms in the field, bought BeVocal, a smaller rival, to gain access to its mobile-services technology. And in April Google launched 1-800-GOOG-411, an experimental voice-driven search service that can be used to find local businesses by telephone within America. “There is going to be a lot more investment in speech for mobile search,” says Daniel Hong of Datamonitor.

This upsurge in interest is due in large part to technological improvements. Companies have worked out ways around many of the problems that befuddled previous speech-recognition technologies. Modern systems often work by identifying vocal sounds, called phonemes, rather than entire words, which can make them more reliable. Deliberately limiting the scope of the words being recognised also improves reliability. Speech-recognition systems do not have to be able to take dictation to be useful; simply recognising a handful of commands or address-book entries is often enough. The “Star Trek”-style communications badges made by Vocera, based in Cupertino, California, are used in hundreds of hospitals to link up doctors, nurses and other staff by speaking a few simple voice commands such as “call” and “find” followed by a name.

The falling costs of processing power and storage capacity have also helped make speech recognition more accurate. “We're better at speech recognition today because of Moore's law,” says Brian Garr, director of enterprise speech solutions at IBM, referring to the industry's rule of thumb that the cost of a given amount of computing power falls by half roughly every 18 months. Another trick is to hand off the work of speech recognition to a powerful remote computer, rather than relying on the processing power of a small portable device. That is how the Vocera badges work. “You can have all the heavy lifting done by one central server,” says Brent Lang of Vocera. And technical standards such as VXML, which provides a standard way to program voice dialogues, have made things easier too.

The resulting lower cost and greater reliability mean that speech-based systems can even save companies money. Last August, for example, Lloyds TSB, a British bank, switched all of its 70m annual incoming calls over to a speech-recognition system based on technology from Nuance and Nortel, a Canadian telecoms-equipment firm. “'Press one for this and two for that' is not that customer-friendly,” says Sally Jones-Evans, managing director of telephone banking at Lloyds TSB, who notes that most British banks use touch-tone systems in their call centres. Using speech recognition instead, she says, provides a competitive advantage because it is easier to use and more efficient. Lloyds TSB has also been able to close one of its 11 manned call centres, reaping “very attractive” cost savings, says Ms Jones-Evans.

But speech-recognition systems do not necessarily spell the end for manned call centres. West Corporation, a company that manages call centres for other firms, is using phoneme-based speech technology from Nexidia, based in Atlanta, Georgia, to analyse recordings of calls made to customer-service lines. Rather than requiring human staff to trawl through hours of recordings, West uses Nexidia's technology to search for keywords and phases, such as positive or negative adjectives, or the names of competitors. “We try to create a customer-mood meter,” says Bruce Pollock of West. This can both help clients understand customer preferences and improve the performance of call-centre operators. (Mr Castro's firm, Pluggd, does a similar thing with podcasts, spotting keywords so listeners can jump directly to segments of interest.)

Christian Montenegro

Another promising area is in-car use. As drivers juggle mobile phones, BlackBerrys, navigation systems, iPods and satellite radios, “the challenge the auto industry is facing now is to offer services to customers in a safe manner,” says Thilo Koslowski, an analyst at Gartner, a consultancy. Voice, he says, is the obvious answer, “because you don't have to take your hands off the wheel or your eyes off the road.” Nearly 70% of premium vehicles (such as those made by BMW and Mercedes) and 20% of mass-market models (from makers such as Toyota and Volkswagen) around the world now have the option of speech-driven functions, says Mr Koslowski.

There are military uses, too. Since last year American soldiers have been testing two-way, speech-enabled translation software from SRI International and IBM to help in training sessions with Iraqi soldiers and policemen. “There is a shortage of human linguists,” says Wayne Richards of the United States Joint Forces Command. But using the software, American soldiers can speak English into their laptops, which then speak the Arabic translation to the trainees. The idea is to get locals trained “so that our forces can come home as soon as possible,” says Mr Richards.

Meanwhile the Phraselator, a hand-held device made by VoxTec of Annapolis, Maryland, lets soldiers maintain eye-contact when conversing with non-English speakers. At a checkpoint, for example, a soldier can say one of a thousand or so predefined phrases such as “Please stand over here”, and the device will say the phrase out loud in Arabic.

## Talking the talk

Still, plenty of pitfalls remain. For one thing, companies frequently fall into the trap of excessive voice-enabling. John Hall, the president of VoxTec, drives a Honda minivan that can respond to several hundred verbal commands. He likes being able to ask his navigation system to “Show me the nearest hospitals”, whereupon it calls up a list of nearby facilities. But 90% of the car's voice commands are useless, he says. It is much quicker to turn up the radio's volume control by hand than it is to press a special button and say “Radio—raise volume,” he notes.

Another difficulty will be encouraging sceptical consumers to give the technology another try. “People have a lot of negative perceptions of speech technology, because the speech systems deployed first were pretty bad,” says Mr Hong. Mr Castro agrees. “There's a history of disappointment and failed expectations,” he says. When setting up his firm, he presented his idea to some venture capitalists. They were impressed by the technology but were put off by the term “voice recognition” which, like “artificial intelligence”, is associated with systems that have all too often failed to live up to their promises. Pluggd attracted a group of angel investors instead, including Intel Capital, the investment arm of the world's biggest chipmaker, and it is now raising its first round of venture capital. Perhaps, after decades of waiting in the wings, the technology is finally about to hear its name called out from the stage.

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Economist.com PRINT EDITION TECHNOLOGY QUARTERLY

# Bringing free software down to earth

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**Mark Shuttleworth, software entrepreneur and space tourist, believes that open-source software is not just for geeks**

Andy Potts

AS HE lays out his vision for the future of open-source software, Mark Shuttleworth is enthusiastic, but he looks tired. He has been up late negotiating yet another deal as part of his mission to bring open source to a wider audience. A successful South African entrepreneur during the dotcom era, he wants open-source zealots to lose their religion and concentrate on ease-of-use instead. And he is putting his money where his mouth is. Since 2004, he has been using his fortune to fund the Ubuntu project, which makes a user-friendly version of Linux, the open-source operating system. Ubuntu is a Zulu and Xhosa term that roughly means “universal bond of sharing between humans”. Ubuntu's slogan is “Linux for human beings”, and it is aimed at mainstream computer users. For although Linux is popular on servers, it is not, so far, used on many desktops.

In part that is because open-source software tends to polarise opinion. It has vociferous critics who suspect that software written by idealistic nerds, and made available free to anyone who wants to download it, must be some kind of communist plot. Zealous believers, meanwhile, long for open source to triumph over the evil empires of commercial software. This clash is often depicted as an epic struggle for supremacy between Linux and Microsoft's proprietary Windows operating system. But the truth is that most computer users do not know or care about the politics of open-source software. Mr Shuttleworth says most people simply want to read their e-mail, browse the web and so on.

“It's very easy to declare victory,” says Mr Shuttleworth, describing the smug attitude of some open-source supporters. “There are big chunks of the software world that depend on free software.” But Ubuntu's aim is not to conquer the software establishment and replace its products. Rather than seeing open-source software as one of two competing ideologies and focusing on the struggle, Ubuntu thinks about the user. Ubuntu is a complete bundle of software, from operating system to applications and programming tools, that is updated every six months and, says Mr Shuttleworth, will always be free. Taking the hassle out of open source is intended to move adoption beyond politically motivated enthusiasts and encourage mass adoption of the software on its merits.

It is a bold scheme, but Mr Shuttleworth is not a man to think small. He was raised in a suburb of Cape Town, an unlikely place from which to join the internet revolution. Yet that was his goal from the day he first used a web browser. When he saw that the internet was switching from a text-based to a graphical medium, “I sensed that everything was going to change,” he says. He spent a couple of years looking for the right way to get involved, given his situation. “I had to find something to do that was cutting-edge, without requiring much bandwidth or venture capital,” he says. He succeeded handsomely by setting up a company, Thawte, that made digital certificates and security software to support internet commerce. He sold the firm for over $500m to VeriSign in 1999, near the peak of the dotcom boom.

## The dream of a space cadet?

In his home country Mr Shuttleworth is most famous for what he did next: he became the first African in space, and the world's second space tourist, in 2002. This involved a gruelling eight-month training regime in Russia's Star City, so that Mr Shuttleworth could accompany cosmonauts on a Soyuz mission to the International Space Station. “Because of the changes that were happening in Russia there was a unique opportunity in changing the way people think about space,” he says. This change is still under

way, he says, and the growth of space tourism means that in the coming years, “we'll all have members of our family who will have been there and had their thinking changed by that experience.”

Mr Shuttleworth believes that open-source software can bring about a similar change in the way people think about computers. To achieve this goal he is relying on business acumen, rather than on the quasi-religious faith that permeates much of the open-source movement. Dell, a big PC-maker, said in May that it would start offering Ubuntu on some of its desktop and laptop products in America. Michael Dell, the company's founder, who recently took over again as its chief executive, even runs Ubuntu on his own laptop. Dell's customers said they wanted to be able to buy PCs with Linux installed, and the company chose Ubuntu—a coup for Mr Shuttleworth.

The deal will do more than simply put Ubuntu on more computers. It will also help to make Canonical, the company Mr Shuttleworth set up to manage Ubuntu, self-sustaining. Canonical has around 80 full-time programmers, although the project also relies on hundreds of volunteers. “Producing Ubuntu does not require a huge amount of money. I could keep funding it for a very, very long time,” he says. “But I'd like to break even, so we're building up a set of revenue models that don't require licensing or advertising.” Dell will not pay to include Ubuntu on its machines, but Canonical will offer buyers training and support on a commercial basis, which will help to fund the project.

## Open-source innovation

Ultimately, though, Mr Shuttleworth's ambitions stretch far beyond just providing the world with a cheap and friendly operating system. “The accusation of proprietary providers is that free software is just copying what's been done before, rather than innovating,” he says. “I don't believe that. The collaborative approach of the open-source community is the richest model for stimulating innovation.” In some areas, he insists, open-source software is not seeking to catch up, because it is in the lead.

One is localisation, or the translation of software into foreign languages. This can take open-source software into parts of the world where it makes little immediate commercial sense to go. “There are some 350 languages in the world with more than a million speakers,” says Mr Shuttleworth. “Free software is only translated in a significant way into about 20 of those, although this is already a lot greater penetration than proprietary software.” With a huge group of volunteer translators to draw upon, open-source programmers ought to be able to make software in other languages far more widely available.

Portable devices such as phones, cameras, GPS units and music-players are another area of opportunity for open-source software. Many such devices are already powered by Linux and other free software, and their numbers are growing. Around 80m smartphones were sold last year, up 20% from 2005, and Linux is the fastest-growing operating system in the field. “My hope is not just that we can achieve parity with the proprietary world, but that we can leapfrog it,” says Mr Shuttleworth. “Things that should be easy will become so. I shouldn't have to synchronise my cellphone with my PC when in Bluetooth range—it should just happen.” And this will happen most easily, he believes, when free software is running on both PCs and hand-held gadgets.

**“My hope is not just that we can achieve parity with the proprietary world, but that we can leapfrog it.”**

But Mr Shuttleworth is most excited about free software's potential to open up the third dimension in the display and navigation of information. “In the space station there was no sensation of up or down,” he recalls. “Yet if it was even slightly obvious which direction Earth was, everyone would point their feet in that direction. Our brain cannot reconfigure itself in a rational way. So we should exploit the irrationality to be productive.”

One area where he sees this happening is in real-time collaboration. E-mail is widely used as a collaborative tool, but has severe limitations. When a team, such as a group of software developers, wants to work together on something in real time, something more elaborate is needed. Mr Shuttleworth points to an open-source platform called Croquet, an immersive environment that is similar in many ways to Second Life, a popular online virtual world. “You can see your collaborators' avatars looking at a spreadsheet in a virtual room,” he says. “People change things in different colours—newer stuff glows. We've started to use this for planning and building Ubuntu.”

Canonical, which is based in London where Mr Shuttleworth now lives, cannot afford to pay for all its programmers to come to planning meetings for new versions of the software, which are held every six

months. Rather than demote some participants to a “second class” of virtual participation, he would prefer to have everyone participate virtually.

Although it may be ahead of proprietary software on some fronts, open-source software lags behind in many areas too, Mr Shuttleworth admits. “The community tends to build for functionality, not for comfort,” he complains. “We have to inspire the free-software world to make the user environment attractive. This takes an order of magnitude more work.” He is also scathing about the incompatibilities that exist between so many open-source projects. Consistent packaging, so that open-source products work across as many platforms as possible, is desperately needed. “Free software doesn't have to compete as commercial vendors do,” he says, “so we shouldn't create artificial barriers where none need exist.” Further confusion arises from the multiplicity of open-source software licences, each with their own set of rules. “This hampers innovation by making it hard to know whether two pieces of software may be used together,” he says.

Despite these problems, Mr Shuttleworth is confident that open-source software can help to make computing and internet access more widely available. He is driven by a desire for greater digital inclusiveness, rather than knee-jerk anti-commercialism. “To me, open source is about making sure that everyone has access to the next wave of thinking,” he says. In 2001 he set up the Shuttleworth Foundation, a non-profit organisation dedicated to educational and open-source projects in South Africa. It has launched innovative projects such as the Freedom Toaster, a machine for copying free software onto CDs in remote regions, where lack of bandwidth makes downloading software impractical.

For Mr Shuttleworth, innovation often comes in two waves. During the web's first wave, much effort was expended trying to transfer traditional thinking about information to the new medium. “For example, the web was organised through a large number of directories, until we realised this didn't make sense as a way to organise information,” he says. But the rise of search engines, the web's second wave, made it possible to search for information using keywords instead. Similarly, he believes, the first wave of open-source software has been about imitating what came before. The second wave, Mr Shuttleworth hopes, will turn the software world on its head.

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Pharmaceuticals

# A gathering storm

Jun 7th 2007 | NEW YORK
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Reuters

**Drugs companies' patents are under attack. Will this really help the poor?**

Get article background

NOBODY could fault Thailand for want of ambition. At the recent Bio conference, the largest annual gathering of the biotechnology industry, it pitched itself hard as an emerging pharmaceutical power, with a dazzling pavilion, visiting luminaries and free drinks for all. Instead, the arguments with Thailand are over means, not ends.

At the end of last year the Thai government stunned the drugs industry when it said it would overrule international patents for Efavirenz, an anti-retroviral drug made by Merck, an American firm, and switch to a Thai-made generic copy at half the price. The country had signed the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which protects drugs patents. But that deal allows "compulsory licensing" only under special conditions—conditions that some complained Thailand did not fulfil.

In the months since then, Thailand has said it would overrule the patents on two more drugs, and it may soon add a further pair to the list. Moreover, other countries have followed its lead. Brazil declared last month that Merck was charging too much for Efavirenz. In recent weeks the health ministers of India, Malaysia and Kenya have also muttered about pursuing compulsory licensing.

All this has sparked an almighty row. Many global-health advocates—including Bill Clinton, whose foundation works on HIV—have applauded the trend, arguing that access to cheap generic drugs will greatly help the poor. Last month the World Health Organisation passed a resolution supporting compulsory licensing. America objected vociferously, but other rich countries supported the motion.

Drug executives are furious. Jon Pender of GlaxoSmithKline, a British drugs giant, insists that compulsory licensing was meant to be used only "as a last resort". He argues that although compulsory licensing is legal, TRIPS rules allow it only under limited circumstances, such as national health emergencies, and only after lengthy efforts to negotiate prices with firms.

"It is easy to see Big Pharma as a source of evil," laments Daniel Vasella, chairman of Novartis, a Swiss drugs giant. His firm is involved in a closely watched patent case in India that involves Gleevec, a cancer drug. Without innovation, he insists, future generations will have fewer life-saving drugs—"which is

equally unethical as lack of access now.” And as Fred Hassan, the boss of America's Schering-Plough and head of the international pharmaceutical lobby, warns, “without intellectual property there is no innovation.”

At first sight, this row reflects an old dilemma that pits today's patients against tomorrow's. Compulsory licensing means that more Thais will get HIV drugs now, but it also means that drugs firms will be less keen to invest in drugs for Thailand in the future. Yet look closer and this is more than a fight between the poor-country sick and rich-world drugs companies. What makes it different is the role of two new actors: muscular middle-income countries and the rising generics industry.

This controversy has been sparked not by the poorest countries, which already get most of their drugs at low cost, but by middle-income ones. They have long used the threat of compulsory licensing to win discounts, but by actually imposing such licensing they shift the balance of power. Rudolf Van Puymbroeck, a former senior lawyer at the World Bank, likens compulsory licensing to other sorts of compulsory state purchases: “Firms are upset not because this is illegal, but because they are in a very weak position to negotiate compensation after expropriation.”

## Follow the money

A perverse result of this trend is that middle-income countries are getting cheaper drugs, whereas quieter and perhaps more deserving neighbours are not. Thailand's poor no doubt need treatment, but the military regime is wealthy enough to spend more on health care. Richard Epstein of the University of Chicago law school has observed that there is nothing to stop AIDS organisations or foreign governments from buying these products at a negotiated price and then giving them away free. “Charity can come from anywhere, not just drug companies,” he notes.

Even experts devoted to the cause of helping the poor get access to drugs see the trend as worrying. “Brazil is not Rwanda, which cannot afford to pay,” says Tadataka Yamada of the Gates Foundation, a giant charity. Victoria Hale, head of OneWorld Health, an innovative non-profit pharmaceutical firm, reckons that compulsory licensing could prove “the last blow” that pushes the drug industry away from looking for cures for diseases of the poor world, which are already woefully neglected.

Whether or not the poor end up suffering in the long run from diminished innovation, a sure winner from the trend towards compulsory licensing is the generic-drugs industry. Under a provision of the TRIPS treaty, countries that invoke compulsory licensing but lack domestic manufacturing are allowed to import generic drugs from another country.

This promises a gold rush for generics firms. Canada encourages domestic firms to produce copycat drugs for precisely this reason. But their costs are so high that such exports cannot hope to compete with the cheaper pills produced by India, argues Amir Attaran of the University of Ottawa. Small wonder that executives at Cipla, one of the Indian firms already making generic versions of HIV drugs, warmly applaud the trend and welcome Brazil's support for compulsory licensing, which they say “helps protect the rights of citizens”.

Does the future therefore belong to compulsory licensing? If so, there may be trouble ahead for both pillmakers and punters. Dr Yamada fears that compulsory licensing could prove “lethal” for the industry. He suggests that drugs firms and middle-income countries ought instead to use a sliding scale, based on GDP per head, to determine prices. Bruce Lehman, a lawyer who worked on the TRIPS accord in the Clinton administration, thinks it is cynical for middle-income countries “to avoid paying their fair share of drug-discovery costs”. In doing so, he fears, they risk provoking a backlash from Americans who will, in effect, have to pay more as a result.

But things may not get that ugly, thanks to the growing influence of innovators in developing countries themselves. Even in India drugs patents have their defenders. Ranbaxy is a local firm that made its name by manufacturing knock-off drugs. But ask Ramesh Adige, a member of its board, about the current trend and he is quick with his reply: “We do not encourage compulsory licensing.” He explains that his firm has 1,100 researchers and invests 7% of its turnover in research and development. It already has process patents, and within two years hopes to have patents for novel drugs (for malaria, possibly). “We are very supportive of intellectual-property rights, as innovations must be given their reward,” he says.

The reason Ranbaxy has gone from ignoring patents to defending them is that it now has inventions of its own that it wishes to protect. Even Yongyuth Yuthavong, Thailand's science and technology minister,

seems to acknowledge the risk his country is taking. “As a scientist myself, I know the value of intellectual property,” he says. “In future, we should develop our own drugs industry.”

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Google and Salesforce.com

# Webbing together

Jun 7th 2007 | SAN FRANCISCO
From The Economist print edition

**With common customers and enemies, two internet firms form an alliance**

Get article background

AS THE largest search engine on the web, Google mostly helps consumers look for information. Less understood is its role, as the largest online advertising agency, in helping small businesses to market themselves. Those same small businesses also need software to keep track of sales leads, which they increasingly choose to buy from firms such as Salesforce.com that deliver it as a service through the web browser, just as Google delivers search results. It therefore "came naturally", says Marc Benioff, Salesforce's boss, for the two companies to team up.

And this week they did. In a nutshell, Google will help small businesses to generate leads, and Salesforce will help to turn them into actual customers, says Sheryl Sandberg of Google. Salesforce's customers can now sign up for AdWords, Google's advertising service, right from Salesforce's website. Like all AdWords customers, they can then choose keywords ("car repairs", say) and bid to have small text links displayed next to the results of any web search for that term. They pay only when users click on the advertisement and are taken to the advertiser's website. At that point Salesforce's service kicks in, collecting information about the user which then pops up on the Salesforce page of the advertiser's sales team, allowing them to follow up and sell something.

For Mr Benioff this alliance has obvious appeal. It will help him to sell more Salesforce subscriptions—this package costs $600 a year for five employees in the same business, though it is free for charitable organisations. It conspicuously pairs him with a company worth almost 30 times more than his own and which is a leader in the "Web 2.0" era, the sort of description that Mr Benioff himself covets. Furthermore, although Salesforce's primary rivals are enterprise-software giants such as Oracle and SAP, it also shares with Google a common enemy in Microsoft.

For Google the deal is a smaller step, but nonetheless strategically interesting. AdWords is far larger than the services of its nearest rivals, Yahoo! and Microsoft, although both are trying to close that gap. Being a partner of Salesforce could protect AdWords' lead. Mr Benioff, with characteristic hyperbole, promises that he will "create millions of new AdWords users", although that number seems rather large, given that Salesforce has only 32,300 existing customers. More important for Google, says Ms Sandberg, is that the partnership will help its customers to "use AdWords better" by understanding more about how their advertising spending leads to sales. It helps that the partnership is exclusive, so that Salesforce cannot run off and offer the same arrangement to Yahoo!.

That said, even closer collaboration between the two companies has been rumoured, and more may yet follow. Google is increasingly pushing its web-based word-processing and spreadsheet applications, which could one day compete with Microsoft's Word and Excel. Salesforce's service can already talk to these Google applications, but deeper integration makes sense. Both companies, as providers of online services, are constrained by the occasional needs of users to work offline, and a new Google technology that makes this possible, called "Google Gears", could help Salesforce.

Given Google's recent appetite for takeovers, even an outright acquisition is not out of the question. Judging by the decoration at this week's announcement, some thought has already gone into the aesthetics. Tofu pieces, representing the cube in Salesforce's logo, were floating in lava lamps, objects nowadays understood in Silicon Valley to be "Googley".

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Advertising

# Got game

Jun 7th 2007
From The Economist print edition

**Inserting advertisements into video games holds much promise**

**Welcome to the future**

THEY are known to television executives as the “Lost Boys”—the generation of video-gaming young men who are watching less television and, thanks to ad-skipping technologies such as TiVo, even fewer advertisements. The obvious response is to start putting advertisements into games instead, by incorporating billboards into the game environment, for example. But incorporating static advertisements into games is unsatisfactory. Now that most PCs and a growing number of games consoles are connected to the internet, however, it is possible to update advertisements when required. As a result, static in-game advertisements are now giving way to dynamic adverts, which accounted for $26m of the $76m spent on in-game advertising last year, and will account for 55% of the $182m spent this year, says the Yankee Group, a consultancy.

Even that projection is probably conservative, says Mike Goodman of the Yankee Group, since advertisers have yet to realise the full potential of dynamic advertising. As well as appealing to makers of fast-changing fashion goods, such as mobile phones and clothes, it also has huge potential for promoting films. Another possibility is to update the music in games too, and use this to promote new singles. Perhaps surprisingly, surveys show that gamers would welcome in-game advertising, at least in some games. Billboards look wrong in a Tolkienesque fantasy adventure, but they make sports games, or those set in urban environments, seem more realistic.

The technology is in place and the market seems promising. But advertisers also need to be able to measure the effectiveness of their campaigns. So next month Nielsen, the world's leading audience-measurement company, will launch a service called Nielsen GamePlay Metrics to provide precise statistics. With the old static approach, advertisers know little more than how many copies of a game have been sold. But Nielsen's new scheme will gather more detailed information and then report back via the internet.

It will be possible to determine, for example, whether players position themselves to see an advertisement more clearly; the angle and distance at which it is viewed; and whether the player pauses to look at it. Such data ought to be very attractive to advertisers. Jens Hofmann of Neue Digitale, a German advertising agency that will offer in-game advertising later this year, says advertisers will pay about €90 ($122) for each 1,000 times an advertisement is viewed, which is about twice the going rate for static advertisements.

All this is good news for the companies that design and publish video games, too. Today's games can cost as much as $20m to develop, and selling prices seem to have hit a ceiling at $60 in America and £45

($90) in Britain. So extra revenue from advertising could help to pay for development as games become more elaborate and expensive. As a rule of thumb, game publishers earn about $5 profit per copy sold. Static advertising typically provides $1 of profit, but by the end of this year dynamic advertising could double that figure.

Dynamic advertisements also allow companies to reach more narrowly defined (and therefore more valuable) demographic groups. IGA, a broker in New York that places its clients' advertisements into games, uses the internet-protocol addresses of players' computers to deliver advertising suited to their location. It can then place a French-language radio advertisement in virtual cars driven by gamers in Luxembourg, for example. Similarly, a promoter can publicise a band's concert tour in particular markets, and a pizzeria can buy advertising slots in the evening.

What's next? Jeffrey Chester, director of the Centre for Digital Democracy in Washington, DC, warns of a slippery slope towards “behavioural targeting”. In March details emerged of a patent filed by Shumeet Baluja, a researcher at Google, for a scheme to build psychological profiles of individual gamers. By analysing in-game behaviour it would assign players to categories such as “risk-taker”, “stealthy”, “non-confrontational”, “dishonest” and so on, enabling advertisements to be targeted accordingly. Google declined to comment, but furious bloggers denounced the prospect of “psychographic” rather than demographic targeting. Perhaps those bloggers will soon be offered in-game advertisements for soothing herbal teas and compilations of relaxing music.

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Technology and education

# Mandarin 2.0

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From The Economist print edition

**How Skype, podcasts and broadband are transforming language teaching**

IT IS early evening in Berkeley, California, and Chrissy Schwinn, a sinophile environmentalist, walks ten feet from her kitchen to her home office for her Chinese lesson. She has already listened to that day's dialogue, which arrived as a free podcast, on her iPod. She has also printed out the day's Chinese characters, which arrived along with the podcast. Now her computer's Skype software—which makes possible free phone calls via the internet—rings and “Vera”, sitting in Shanghai where it is late morning, says *Ni hao* to begin the lesson.

One might call it “language-learning 2.0,” says Ken Carroll, an Irishman who in 2005 co-founded Praxis, the company that provides Ms Schwinn's service, after hearing about these “Web 2.0” technologies from his slightly geekier co-founders, Hank Horkoff, a Canadian, and Steve Williams, a Briton. The penny dropped at once.

“Tens of millions” of people in 110 countries now download the free ChinesePod podcasts, Praxis's flagship service, says Mr Carroll. About 250,000 listen regularly and “several thousand” pay for the premium services, which include individual Skype chats with teachers. A second service, SpanishSense, is out, and more will follow.

As a businessman, Mr Carroll loves the economics behind this scheme. Having taught English in Shanghai for a decade, he always knew that the old technology of classrooms and books would never “scale” to cover the world. Now he has 35 employees, all in Shanghai, serving customers globally. He hires the city's best language teachers and pays them about $500 a month, a good wage by local standards.

The customers are everywhere from Berkeley to Alaska and the Vatican. In the past, when language instruction—along with haircuts and massages—was a “non-tradable” sector of the economy, many people would not have found a native Mandarin speaker as a teacher in their town at all. Now they need only a broadband connection.

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Corporate sponsorship

# The cartel of silence

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**Should Deutsche Telekom continue to sponsor a tainted sport?**

IT WAS a great way to promote Europe's biggest telecoms company. Team Telekom, the cycling team sponsored by Deutsche Telekom, triggered a cycling craze in Germany after a string of victories in the 1990s. Jan Ullrich, a member of the team, joined the pantheon of German sporting heroes alongside Boris Becker, Franz Beckenbauer and Michael Schumacher after his victory in the Tour de France in 1997. All this helped Deutsche Telekom to attract new customers and promote new services such as internet television.

So when six former cycling stars and two team doctors tearfully confessed to using performance-enhancing drugs last month, the company's first reaction was to stand behind the team that has done so much for it. Deutsche Telekom even continued to back one of the dopers, Rolf Aldag, now the sports director of Team T-Mobile (as the team has been known since 2004). The confessions came in response to an article in *Der Spiegel*, a news magazine, at the end of April in which Jef d'Hont, a Belgian masseur who worked for Team Telekom in the 1990s, described doping practices at his old employer.

There has been no public statement yet from Mr Ullrich, who was fired by the team last year after doping allegations which he strenuously denies. Mr d'Hont has claimed that Mr Ullrich used erythropoietin, a banned blood-booster, and alleges that the cyclist used growth hormones as well. On June 5th Walter Godefroot, a former Team Telekom manager, said he never instigated doping practices at the team during the 1990s, but refused to say whether he knew that several of his top cyclists were using banned substances. He said he would sue Mr d'Hont, who implied that Mr Godefroot had organised the doping.

As the scandal continues to reverberate, Deutsche Telekom says it is rethinking its commitment to back the cycling team until 2010. Government officials criticised the firm's sponsorship of a discredited sport, though no member of the government has yet publicly called on Deutsche Telekom's boss, René Obermann, to sever his firm's ties with the team. (The government owns 32% of the former monopoly.)

“Telekom's continued support of the T-Mobile team does not have to damage the image of the company,” says Gregor Halff, an expert in corporate communications at the International School of Management in Dortmund. The irony is that Deutsche Telekom has taken an active role in the fight against doping. So if it handles the situation carefully, Mr Halff argues, it might well enhance its image. Almost all of Germany's blue-chip companies are big sponsors of sports teams, but only Deutsche Bank, Deutsche Telekom and Allianz, an insurer, contribute to NADA, Germany's anti-doping agency. In the wake of the scandal, Deutsche Telekom has agreed to increase its yearly contribution of €200,000 ($270,000) to NADA.

Klaus Backhaus, a marketing expert in Münster, disagrees. He thinks the scandal is hugely damaging for the firm's image, though he does not think that it will necessarily hurt its business. Wiesenhof, a poultry firm, has taken a similar view. It has decided to end its sponsorship of Team Wiesenhof-Felt—the number three cycling team, based in Leipzig—because of the doping scandal.

Now the politicians are weighing in too. Angela Merkel, Germany's chancellor, has called on all those involved to break the “cartel of silence”. A new anti-doping law is in the pipeline. Peter Danckert, chairman of the parliamentary committee on sports, has proposed an amnesty for active athletes who come forward and explain themselves by the end of the year. “They will suffer anyway, because they will be ostracised by society,” says Mr Danckert. By next year new rules should be in place—including sanctions for those who continue to take illegal substances.

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European corporate governance

# Tricks of the trade

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**Minority shareholders have their ways of controlling European firms**

HE WHO pays the piper calls the tune—but not in corporate Europe, where privileged shareholders use a range of tricks to maintain control of companies, even though they often own only a small proportion of the shares. How widespread are such practices? A new report by Institutional Shareholder Services, a proxy-research firm, the European Corporate Governance Institute (ECGI) and Shearman & Sterling, a law firm, examines the range and prevalence of legally available "control-enhancing mechanisms" (CEMs), the use made of them by leading European companies, and what institutional investors think about them.

The report identifies no fewer than 13 types of CEM, from pyramid structures and multiple voting rights to cross-holdings and shareholders' agreements. Not all can be found in all countries, but between five and 11 CEMs are available in most European Union member states. Twelve of them are available in 40% of the 19 countries covered by the report, and five of them in 80% of the countries. Of the 464 companies surveyed, ranging from industrial giants to newly listed firms, 44% have at least one CEM written into their rules.

Pyramid structures turn out to be the most important and widely available form of CEM (see chart). They are used in all western European countries except Britain, Ireland, Finland and Denmark, and by 83 of the 464 companies surveyed. Pyramid structures involve an entity (such as a family or a company) controlling a corporation that in turn holds a controlling stake in another company, a process that can be repeated several times. By chaining several companies, ownership (and risk-bearing) can be separated from control.

**How they do it**

Control-enhancing mechanisms in Europe*

| | Availability, % | Actual use of, %† |
|---|---|---|
| Pyramid structure | 100 | 75 |
| Shareholders' agreements | 100 | 69 |
| Cross-shareholdings | 100 | 31 |
| Multiple voting-rights shares | 50 | 44 |
| Golden shares | 44 | 31 |
| Ownership ceilings | 37 | 25 |

Source: ISS, ECGI, Shearman & Sterling

*In 16 EU countries
†proportion of countries

The Italians are unquestionably Europe's champions when it comes to pyramid-building. Consider how the Agnelli family maintains control of the Fiat group, for example. The top Agnelli family company is Giovanni Agnelli & C, a limited partnership, which controls a 30% stake in Fiat through a cascade of two quoted companies, IFI and IFIL, in each of which it has a controlling interest. A similar technique was used until recently by Marco Tronchetti Provera to control Telecom Italia.

But pyramids do pop up elsewhere. Among the few in Germany are those at two vehicle manufacturers, Volkswagen and MAN, and at RWE, a utility. The MAN pyramid is linked to another cluster of pyramids in Sweden. The Swedish pyramids are part of the elaborate structure by which two foundations of the Wallenberg family—the Wallenberg Foundation and SHB—maintain control of the companies they built up to become the backbone of the country's economy.

In both Italy and Sweden pyramid power is augmented by multiple voting rights for certain kinds of share. These occur in 24% of the firms surveyed, most notably in Sweden and France. In France the Peugeot family uses this mechanism to maintain its hold on PSA Peugeot Citroën, a carmaker, in which its 30% financial shareholding commands 45% of the votes. The technique is also employed by the Arnault family to control LVMH, a luxury-goods firm, and by the Pinault family at the rival PPR group.

Some kinds of CEM are in decline. The cross-shareholdings that were once a hallmark of French and German business are going out of fashion, for example, though they tend to survive in finance: in the Netherlands ABN AMRO and ING, two banks, own 10% of each other. But in French finance AXA, an insurer, and BNP, a bank, hug each other in a close embrace sealed with a shareholders' agreement—a sort of corporate pre-nuptial that says who is entitled to do what.

The most famous of these shareholders' agreements is in the Byzantine structure of the European Aeronautic Defence and Space company (EADS). The shareholders of this Franco-German-Spanish group, domiciled in the Netherlands, include a French public-private shareholder, DaimlerChrysler, a German carmaker, and a Spanish state holding-company. The shareholders' agreement lays down the composition of the board, giving the company two chairmen and two chief executives, among other things. Further conditions include restrictions on share transfers and rights for the French government to keep the company in the missiles business. A complex web of defence and strategic reasons spawned this monster, resulting in managerial chaos.

Are all CEMs similarly against the interests of the ordinary shareholder, or bad for the fortunes of the company? A literature review carried out by the ECGI to underpin the study concludes that the academic evidence is inconclusive. Shareholders seem not to mind: although about 80% of big investors surveyed are opposed to CEMs, and typically apply a discount of between 10% and 30% to the shares of companies using them, they say they are happy to buy shares in firms provided the underlying investment case is sound.

Even so, it may be that such tricks are on the wane. The report finds that newly listed companies use them much less often than established firms. And despite the availability of many CEMs under British law, none of the 20 recently listed British companies in the survey uses them. In all but the family firms, where they will probably endure, CEMs could well be headed for the cemetery.

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Media in Africa

# New kid on the stock

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AFP

**A new television channel bets on African business**

AFRICAN television fans now have something new to watch at all hours of the day. On June 1st CNBC Africa, the latest franchise in the CNBC family of business-television stations, was launched with great fanfare from brand-new headquarters in Johannesburg. The new channel kicked off with a live session with South Africa's President Thabo Mbeki, who answered questions from prominent local businesspeople, followed by debates and a commercial reckoning of the continent's "renaissance". The first 24-hour African business channel broadcasts to 14 countries across the continent. It has replaced CNBC Europe on DStv, Africa's most popular satellite outfit, and terrestrial broadcasters in Kenya, Nigeria and possibly Namibia are keen to show some of its content as well.

Around $22.5m has been ploughed into the new channel by a consortium of Dubai-based investors who are already involved in other CNBC franchises, and by the Industrial Development Corporation of South Africa, a government financial body, which owns 30%. Trevor Ormerod, the channel's chief operating officer, reckons that CNBC Africa will break even within five years. Advertisers have already signed up for multi-year contracts to reach the audience of affluent and influential African viewers that the channel hopes to attract.

About 180,000 people across the region—overwhelmingly from South Africa—previously tuned into CNBC Europe every week, and the new channel hopes to attract more than double that number with the nine or ten hours of new local programming that will go out every day. The aim is to project a more nuanced image of Africa than the procession of disasters and diseases captured by Western television channels. Future outposts may be added in the Congo, Tanzania and Angola.

All of this could be bad news for Summit TV, a South African business channel that broadcasts in the evenings. With a staff of 40 people, Summit attracts over 200,000 local viewers a week and also sells content to Britain's Sky News. Vernon Matzopoulos, Summit's boss, believes that the two channels will cater to slightly different audiences. But it remains to be seen whether there is enough of an appetite for business news to sustain both channels.

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Face value

# Paper queen

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AP

**The industrial barons of the 19th century would recognise Cheung Yan as one of their own**

EVEN within China, home to perhaps the modern world's greatest collection of embryonic industrial giants, Nine Dragons Paper is exceptional. It has grown from nothing into the world's third most valuable paper company in a mere 12 years and will probably become the single largest paper producer in the middle of 2008. One explanation, albeit an unlikely one, is the peculiar tea that grows near one of its factories. The light-coloured liquid that the firm's chairman, Cheung Yan, offers her guests delivers the energy jolt of an espresso without the jittery buzz. The same could be said of Nine Dragons: it is an energetic company that suffers from none of the jittery distractions—the unrelated subsidiaries and the quasi-state, quasi-private ownership—that plague many large Chinese firms.

And, more to the point, the bracing tea is rather like Mrs Cheung herself. Although a small woman, her intensity can fill a room and enthuse the people around her. Much the same was said about the steel mogul Andrew Carnegie, a small man with a gigantic presence and personal charisma backed up by unusual intelligence and drive. Like Mrs Cheung, Carnegie lacked formal education and experienced early hardship. His father, a weaver, was uprooted by the advances of the industrial revolution and left Scotland for America, where as a young boy Andrew went to work in a textile factory. Mrs Cheung's father was jailed in the Cultural Revolution and she, too, ended up working in a textile factory, supporting her seven siblings and mother on a mere 40 yuan ($6) a month. Both emerged from their early afflictions with a deep knowledge of business and extraordinarily bold and far-reaching ambitions.

In this last respect, however, even Carnegie might have been a bit awed by Mrs Cheung. He came of age in an era of industrial giants in which business empires were rising all around him. But today heavy industry makes modern bosses shudder: all those assets, the blue-collar workers, the investment, are regarded as risks to be spun off, outsourced or dumped. In the developed world, paper firms come in two varieties: consolidators and victims. The survivors have closed plants, sold property and, after protracted deliberation, barely tiptoed into developing markets. Even in China, the new industrial heartland, the paper industry has proved particularly unforgiving. Producers are typically small, inefficient and environmentally disastrous.

Mrs Cheung has no time for any of this. After leaving the textile plant she got a job in a small paper company in southern China. Learning first-hand of the soaring demand for waste paper that could be recycled into packaging material, she opened a business in Hong Kong in 1985, scouring dumps for raw material. She then realised that the pickings were infinitely greater in America and moved temporarily to Los Angeles, despite not speaking English, to set up a waste-export business, collecting the packaging materials that accompany Chinese goods to America and sending them back to be reused. “Vision and methods”, she says, matter more than language. Within five years the firm had become America's largest exporter of waste paper.

An early effort to take this business a bit further, through a passive investment in a Chinese paper-making company, was a failure. Mrs Cheung responded by founding Nine Dragons in 1995 and spent three years setting up the first of its paper-making machines in Dongguan, in southern China. It was capable of producing 200,000 tonnes annually, a considerable amount, but nothing like what would follow. One more machine was installed in 2000, another in 2002, two more in 2003, another two in 2004, and three in 2005, one of them on a new site outside Shanghai. Three more machines began operating earlier this year and another two will start up next month, pushing total annual capacity to 5.4m tonnes. Further capacity which is due to come on stream next year will enable Nine Dragons to surpass International Paper and Smurfit-Stone to become the world's largest paper producer.

## The march of the machines

A third site in western China is under construction, and like the other two it is being designed to handle 5m tonnes a year—equivalent to the company's total capacity today. All this is inevitably expensive, but Mrs Cheung insists that greater scale creates greater efficiency and reduces the cost per unit of output. It is, to be sure, a different approach to cost-cutting from the fashionable technique of sacking workers, cutting operations and moving work overseas, but it seems to be working.

The large and growing volume of paper being produced by Nine Dragons has been digested by the market: prices have remained firm and net profit margins have steadily increased from 6% in 2005 to 20% in the most recent quarter. The company's margins are now among the highest, if not the highest, in the global paper business, says Kevin Leung of CLSA Securities, a brokerage. The paper industry may, as a general rule, be a rotten business to be in, but not in a growing market where potential competitors have lost their nerve. There is only one other sizeable Chinese paper company.

Mrs Cheung, together with her husband and her brother, both of whom are senior executives, collectively own about 70% of Nine Dragons, which is now worth $6.5 billion—making Mrs Cheung the wealthiest self-made woman in the world. A new compensation scheme, Mr Leung observes, eschews cash and rewards senior managers with shares on favourable terms—provided profits grow at an annual rate in excess of 35% for five years, that is. It is a staggering, almost unbelievable figure, except that Nine Dragons has grown at an even faster rate in the past. Mrs Cheung takes a final sip of her magical tea and hurries out to catch a flight to northern China. She expects to announce plans for a fourth paper-making site there by the end of the year.

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Apple

# The third act

Jun 7th 2007 | SAN FRANCISCO
From The Economist print edition

**Steve Jobs has twice taken Apple to new heights. With the launch of the iPhone this month he is hoping to do so for a third time**

AP

Get article background

IN ANY other setting, it would have been corny to quote from a Beatles song to sum up a three-decade relationship that has encompassed partnership and alliance, rivalry and enmity, as well as defeats, triumphs and reversals on both sides. But not when Steve Jobs of Apple was talking to Bill Gates of Microsoft after reminiscing about the old times on a conference stage last week. “You and I have memories longer than the road that stretches out ahead,” he said. And there were moist eyes in the audience.

Mr Jobs might have added that the two of them are likely to continue jostling each other on that road ahead for some time longer. In the past they and their companies shaped the era of the personal computer—Mr Jobs as the archetypal pioneer, by building some of the first boxes three decades ago, and Mr Gates as the archetypal industrialist, by being the first to recognise how to charge for software as a separate piece and using that to dominate the industry, at Apple's expense.

Today, however, at the dawn of a new era of digital lives in which computers are only part of an expanding consumer-electronics industry, the odds are on Mr Jobs and Apple as the winner. In the past six years Apple, with its iPod player and iTunes service, has come to lead the (legal) digital-music industry roughly as Microsoft dominates the PC industry with Windows. On June 29th Apple will enter an even bigger market when it launches a new mobile phone, called the iPhone.

Ostensibly, Mr Jobs's ambitions for the iPhone are modest. He expects 10m to be sold by the end of next year, about 1% of the world market for handsets. Apple has sold ten times as many iPods. But these numbers belie the significance of the iPhone—and Mr Jobs's ambitions for it. Rather, it represents the latest step in the transformation of Apple, from a computer-maker to a consumer-electronics company, which Mr Jobs made official this year with the symbolic dropping of the word “Computer” from the firm's name. His success in this transformation so far, and the expectation of a new phase thanks to the iPhone, explain why Apple, one decade after nearly collapsing, is now worth more than $100 billion and is to be included in America's blue-chip elite, the Standard & Poor's 100 index.

As a phenotype, the iPhone displays the best of Apple's DNA in design and simplicity. Where other handsets are cluttered with mechanical buttons, the iPhone has exactly one. For its functionality, it relies on a new technology, called “multi-touch”, which lets people use their fingers—as opposed to, say, a

stylus—to move, resize, swivel, or select things that appear on the screen. As with other breakthroughs to come out of Apple, multi-touch was not invented at the company, but spotted by Mr Jobs as his key to unlocking the next advance in gadget design. Nor is Apple the only firm to have thought of fingers as navigation tools—Microsoft has similar plans for a “surface computer” that uses a table-top as the interface. These will be vastly more sophisticated than the touch-screens already found on devices like ticket machines. But Apple is among the first to tie the hardware and software together and make it available for sale.

At first glance, the iPhone appears to be an unusual device for Mr Jobs to launch. Tim Bajarin, who has covered Apple as an analyst since the early 1980s and runs Creative Strategies, a consultancy, says that Mr Jobs is usually attracted to devices that define new categories, rather than compete in large, pre-existing industries such as the handset business. But Mr Jobs knew that mobile phones were becoming music players, and thus rivals to the iPod, says Mr Bajarin, so entering the handset industry became a “defensive” imperative.

Since he could not invent the category, Mr Bajarin says, Mr Jobs decided to reinvent it. He did this by making the iPhone not only a phone, but also a fully fledged iPod (“the best yet,” says Mr Jobs), as well as the first device that can really claim to bring the full internet into users' pockets.

The iPhone has plenty of drawbacks, such as its battery (see article). But these criticisms miss the point, argues Ben Reitzes, an analyst at UBS, just as scepticism about the original iPods in 2001 was misplaced. The iPod introduced a new technology (the click wheel) which made possible better and cheaper successor versions (the “mini”, the “shuffle”, and the “nano”) that now collectively account for nearly half of Apple's revenues. Similarly, the first iPhone and its multi-touch technology should be seen as a new “mega-platform” that will support other products—ultra-portable computers, say, or new TV sets—besides better and cheaper iPhones. Hence the iPhone launch, says Mr Reitzes, provides a “logical chronology of new products for years to come.”

## How did he get here?

This prospect makes Mr Jobs arguably unique “in the Silicon Valley pantheon,” says Paul Saffo, a veteran forecaster in the industry, since it suggests a rare ability to reinvent not only product categories, but also himself. A new launch trajectory based on the iPhone would mean that Mr Jobs will have pioneered a third technological revolution after the graphical user interface, with the Macintosh in 1984, and the legal digital-music era, with iTunes and the iPod in 2001.

The first of these revolutions—the original Macintosh—is now perhaps less famous for its technology than its marketing, especially the memorable TV spot during the 1984 Super Bowl which announced it. An unsubtle allusion to George Orwell's “1984”, it featured a Big Brother, understood at the time to be IBM, indoctrinating the numbed masses, until a colourful rebel, understood to be Apple, literally smashed the oppressor, liberating those who dare, as an Apple slogan would in later years have it, to “think different”.

Its name an intentional misspelling of the McIntosh apple variety, this Macintosh was the first commercially successful personal computer that allowed users to point and click with a mouse. Beginning a pattern, Mr Jobs had spotted the technology outside Apple, grasped its potential, developed it and made it easy to use. Microsoft wrote software for the Macintosh, but then copied it with Windows, thus determining the way people everywhere would encounter PCs ever since.

Mr Jobs's success with the Macintosh, however, soon gave way to a personal and professional nemesis. He had brought John Sculley, an executive from PepsiCo, to help him run Apple. But in 1985, when Mr Jobs was only 30, he and the 46-year-old Mr Sculley fell out and Mr Jobs, in a Shakespearean boardroom drama during which all the directors voted against him, was ignominiously ousted. “What had been the focus of my entire adult life was gone, and it was devastating,” he would later recall.

With hindsight, however, the next 12 years in Mr Jobs's career were the crucible in which today's innovator and better businessman was forged. “I didn't see it then, but it turned out that getting fired from Apple was the best thing that could have ever happened to me,” he said in 2005. “The heaviness of being successful was replaced by the lightness of being a beginner again, less sure about everything. It freed me to enter one of the most creative periods of my life.”

Outwardly, this took the form of two companies. One was NeXT, which Mr Jobs founded to create, yet again, a new kind of computer. Its first product, unveiled in 1988, was the NeXT Cube, an absurdly

powerful and expensive box that nobody, as it turned out, wanted to buy. After that dud NeXT turned to software and focused on its state-of-the-art operating system.

The other firm was Pixar, an animated-film studio that Mr Jobs bought from its founder, George Lucas, in 1986, largely because he loved its stunning graphics. But Pixar struggled until Mr Jobs struck a deal with Walt Disney in the 1990s. Using Pixar's creative flair and Disney's marketing and distribution clout, Mr Jobs oversaw an uninterrupted string of blockbusters, starting with “Toy Story” in 1995.

During this time, Mr Jobs matured in other ways. As a character, he had always been a bundle of contrasts. Aesthetically and outwardly, he started as a Californian hippie, a “fruitarian” and a Zen Buddhist. At the same time, he habitually and gratuitously parked in handicapped spots and was capable of decidedly un-Zen-like outbursts of anger and ruthlessness towards friends and colleagues. Employees at NeXT lamented their “hero-shithead roller-coaster”, as Mr Jobs oscillated between doling out profuse praise and public humiliation. These traits did not disappear in the 1990s, but did seem to subside.

A similar evolution took place in Mr Jobs's business instincts. Until his ousting from Apple, recalls Mr Bajarin, Mr Jobs was a purist and idealist in matters not only of design, technology and marketing, but also of strategy and tactics. In his exile—and while watching Mr Gates score one victory after another to make Windows a virtual monopoly—he became a realist in matters of strategy, while remaining an idealist in other ways.

## The return

Mr Jobs's career and life took another dramatic turn in 1996. His former company, Apple, was by now so marginal in the computer industry and losing so much money that analysts debated whether it would implode or be sold. Instead, Apple's boss, Gil Amelio, gave it another roll of the dice by buying the best available operating system at the time, which happened to belong to NeXT, and thus Mr Jobs. So Mr Jobs found himself back at the company he had started 20 years earlier.

Now it was Mr Jobs's turn to stage a boardroom drama, except this time he made sure he would prevail. In 1997 he became Apple's “interim CEO”, only to drop the word “interim” from his title in 2000. Culturally, he returned Apple from its free-wheeling Silicon Valley ways to a benign dictatorship and enforced a cult of secrecy that employees began to call *omerta*, because it resembled the code of silence that keeps Mafiosi from ratting.

Gradually, all the threads of Mr Jobs's life over the past decade would converge. Out of his new strategic realism—and to the horror of his cult—he invited Microsoft to invest in Apple. This removed the immediate doubts over Apple's survival. Technologically still an idealist, he used the NeXT operating system as a foundation for a new operating system, Mac OS X, and its later versions (called Cheetah, Puma, Jaguar, Panther and Tiger, with Leopard coming this year). Aesthetically still a purist, he worked with Jonathan Ive, a British designer, to launch the iMac, a provocatively candy-coloured line of computers and the precursor to all Macs since.

The iMac marked the start of a string of “i” products (for “internet”), from software such as iLife, iPhoto, iMovie, iDVD and iTunes, to hardware such as the iBook, iPod, and now the iPhone. Underlying them was a vision about the emerging digital life. Mr Gates and others may have shared it, but only Mr Jobs already understood how it would differ from the PC era, when office-worker productivity was the priority. The digital life requires more simplicity for home use and much tighter integration between hardware and software.

Thus it was Apple, not Microsoft, that became the early leader, thanks again to Mr Jobs's new realism. While the first iPod, in 2001, was beautiful, it worked only on Macs. But the following year Mr Jobs—again shocking his cult—made iTunes, the iPod's sister software, available to Windows users, which was “like giving a glass of ice water to somebody in hell”, as he joked last week. With about 300m copies of iTunes in use, Mr Jobs now influences the music industry as it gropes for a new business model. Partly at his urging, EMI, a British label, has now begun selling songs on iTunes without copyright protection.

In video, Mr Jobs used his other company, Pixar, to gain preferential access to Hollywood. Mr Jobs had fallen out with Pixar's partner, Walt Disney, because he clashed with its boss, Michael Eisner, who liked to control everything around him and was thus too similar to Mr Jobs for collaboration. But when a new and more convivial boss, Bob Iger, took over at Walt Disney, relations warmed again. On behalf of Apple, Mr Jobs struck an alliance to turn iTunes into a seller of video as well as music. Then, last year, he sold Pixar

to Walt Disney outright and joined its board, thus securing for Apple a reliable partner in Hollywood for things to come.

During all this, Mr Jobs never forgot his original passion, his Mac computers. At their nadir, Macs fell to a world market share of a couple of percent; now, benefiting from what Wall Street calls the iPod's "Halo effect", some people are switching from Windows PCs to Macs, and their market share is near 5% and rising. Once again, Mr Jobs displayed his new strategic realism by switching from processors made by Motorola and IBM to ones from Intel, whom he had once considered part of the "Wintel" axis of evil. Now that all Macs run on Intel chips, users can, with so-called "virtualisation" software, run both Windows and OS X on their Macs. This removes—for Mac fans who need to use Windows at work, for instance—the largest single obstacle to gaining converts.

To market the digital life, Mr Jobs took another iconoclastic step and made Apple a retailer. This defied convention, but it worked. With more than 170 shops across the world today, characteristically temple-like in their design, Apple's stores are more efficient (in sales per square foot) than such established retailers as Tiffany, BestBuy and Neiman Marcus.

## Halo wobbles

There have been setbacks during this decade, but they have been manageable. The G4 Cube, launched in 2000 (and harking back to the old NeXT Cube), flopped, but was conveniently forgotten. More frightening was a brush with pancreatic cancer in 2004. It was cured, but it was a reminder that, even though Mr Jobs has competent lieutenants—Tim Cook runs operations, Philip Schiller marketing, and Mr Ive design—the identity of the company is dangerously intertwined with one man.

This concern has been reinforced by a financial scandal that briefly threatened to engulf Mr Jobs himself. Since returning to Apple, he has received a salary of only $1 a year, but his share options made him the highest-paid boss in America last year. Two grants of such options—one to Mr Jobs himself, the second to other executives—in 2001 have aroused the interest of America's financial watchdogs. Both times, the options were "backdated"; that is, the dates of the grants, and thus the relevant share prices, were artificially moved back to a more convenient time.

Technically, such backdating is legal, although it has accounting implications that Apple initially ignored. Last December it had to restate its earnings. Apple insisted that Mr Jobs didn't know about the accounting implications. But Fred Anderson, a former finance director and board member who resigned last October, and who in April paid $3.5m to settle a lawsuit by America's regulator over this issue, has said that he warned Mr Jobs that backdating would incur extra expenses. Moreover, according to regulators, Apple's former general counsel, Nancy Heinen, told staff to prepare fake paperwork to cover the backdating, including board minutes from a meeting that never occurred. Ms Heinen is now fighting these accusations in court.

None of these issues has yet interrupted Mr Jobs's astonishing second act in music, or his preparations for a third with the iPhone. Far from being defeated by its old foe, Apple is now building alliances against Microsoft with friends such as Google, with whom Apple shares two board directors. Conceivably, Messrs Jobs and Gates may yet take the stage again in another three decades, to reminisce about even more revolutions pioneered, and to look toward the road still ahead.

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The iPhone's features

# Twiddling fingers

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From The Economist print edition

**What is in the next must-have**

Get article background

THE first iPhones are now on their way to Apple's American retail stores and those of its service partner, AT&T. They will arrive in Europe later this year and in Asia next year. The iPhone's main features are:

• A “multi-touch” screen replaces mechanical buttons. This allows you to use your fingers to operate the menus, dial, select music or write an e-mail.

• Unlike existing “smart” phones, with limited operating systems and restricted web browsers, the iPhone uses the operating system (called Mac OS X) and web browser (Safari) that Apple's computers use.

• Some functions are automated. Sensors rotate the display from portrait to landscape as required, turn off the display to conserve power when a user lifts the phone to his ear and adjusts its brightness according to the light.

The iPhone's drawbacks include its battery life, which is mediocre and vexing because the battery will be irreplaceable. The phone also uses a data network, AT&T's EDGE, which is slow compared with third-generation networks (although Mr Jobs counters that the iPhone will be so good at hopping onto Wi-Fi hotspots for a broadband connection that this will not matter). Nor is the iPhone open to third-party software developers, although Mr Jobs intends to change that over time.

The absence of a mechanical keyboard may put off thumb-trained corporate BlackBerry users. And, not least, with an entry price of $499, the iPhone may prove too expensive for all but the rich or gadget-crazy.

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India's economy

# Waiting for the monsoon

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From The Economist print edition

AFP

**The economy continues to overheat despite a rising currency and recent signs of falling inflation**

JUDGING by the latest burst of economic euphoria in India you would think that the monsoon had arrived early this year, bringing relief from the country's scorching heat. Indian businessmen and politicians are cheering the latest economic numbers, which appear to show that inflation is falling even as growth remains strong. This, they claim, shows that the risk of the economy overheating has faded. Their glee is premature: India's economy, like Delhi this week, remains far too hot.

India's GDP grew by 9.4% in the fiscal year ending in March, its fastest rate for 18 years and the second strongest on record. JPMorgan estimates that growth in the three months to March accelerated to a seasonally adjusted annual rate of 11.4%. Yet, despite rapid growth, wholesale-price inflation (the measure of prices most closely watched by policymakers) fell to 5.1% in mid-May, down from 6.7% in January and close to the Reserve Bank of India's (RBI) inflation target of 5% for 2007-08.

Several economic commentators have concluded that the panic earlier this year over rising inflation was exaggerated and it is now safe for the RBI to ease policy—or at least that there is no need for further tightening. Since January 2006 the RBI has raised its overnight lending rate by one and a half percentage points, to 7.75%. And monetary conditions have been further squeezed by the Indian rupee, which has surged by 10% against the dollar since March (see chart) to a nine-year high.

The jump in the rupee reflects an abrupt change in policy by the RBI. Until March the central bank was intervening heavily to hold the currency down. But the large amounts of dollars it was forced to buy were fuelling excessive growth in the money supply and hence inflation. To offset this extra liquidity, the bank "sterilised" the increase in foreign reserves by selling securities to banks. The snag is that sterilisation is expensive because the RBI has to pay much more on the bonds it issues to mop up liquidity than it earns on dollar reserves. A pegged exchange rate also cramped the RBI's room to raise interest rates, because that would attract yet more capital.

The RBI's job had been made even harder by the government, which last year encouraged capital inflows by raising the ceiling on foreign borrowing by firms, allowing Indian companies to take advantage of lower interest rates abroad than at home. All Asian economies have faced upward pressure on their currencies

but, says Rajeev Malik of JPMorgan, India is the only one where the government has foolishly invited more capital inflows. In April the government sought to take some of the steam out of the rupee by allowing Indian firms to make bigger overseas acquisitions. It raised the ceiling for overseas investment to three times an Indian acquirer's net worth, from two times.

By abandoning its attempt to hold the rupee down against the dollar, the RBI is now able to regain control over monetary policy and so focus on containing inflation. But exporters are howling about their loss of competitiveness and a fierce debate is raging among economists over what should be done about the currency.

Some argue that India should copy China and continue to intervene heavily to keep its exchange rate cheap. However, Arvind Subramanian, an economist at the Peterson Institute for International Economics in Washington, DC, points out that China's ability to sustain its exchange rate stems in part from “financial repression and autocracy”. When China sterilises the monetary impact of rising reserves, its central bank pays interest of only about 2% on the bills that domestic state-owned banks are forced to buy, considerably less than the interest it earns on American Treasury bonds. This makes sterilisation profitable in China (as it is not in India), so it can be sustained for longer.

Reversing reforms and shifting back to such financial repression is not a sensible economic strategy for India, argues Mr Subramanian. And since India already has one of the biggest budget deficits among emerging economies (7% of GDP for central and state government), it simply cannot afford to intervene and sterilise on China's scale.

Another big difference is that inflation in India is much higher than it is in China, where consumer-price inflation is running at 3%. Thus even when the rupee's nominal rate against the weakening dollar was held down, India's real exchange rate rose because of high inflation. Goldman Sachs reckons that the rupee is one of the few Asian currencies that is overvalued against the dollar.

In the past couple of weeks the RBI seems to have resumed intervention, with official figures showing another big jump in foreign-currency reserves in late May. This may be in response to government pressure. Others suggest that it is because falling inflation has allowed the bank to shift its attention back to the exchange rate. If so, this may be premature.

Chetan Ahya of Morgan Stanley argues that the fall in wholesale-price inflation has been largely caused by three factors: the rise in the rupee, which has trimmed the prices of imported goods; administrative measures, such as a cut in fuel taxes and import duties and a ban on wheat exports; and the “base effect” of some commodity prices being higher a year ago. However, the root cause of inflation is that demand continues to outpace supply.

This is not to deny that India's economic speed limit has increased, to perhaps 7-8%, thanks to stronger investment and economic reforms. But growth has exceeded that limit. The economy still shows alarming symptoms of overheating, such as soaring house prices, credit growth of 28% over the past 12 months and 15%-plus average rises in wages for skilled workers. Industrial capacity utilisation has risen to a record high, and rampant domestic demand sucked in 41% more imports than a year ago in April, pushing the trade deficit to a record level.

Moreover, wholesale prices are not the best measure of inflation. About 40% of the wholesale-price index reflects global commodity prices rather than domestic conditions. India does not publish a national measure of consumer-price inflation, but the average of the rates for industrial, non-manual and agricultural workers is now nudging a worrying 8%.

India needs a period of slower growth to reduce these excesses and this requires higher interest rates. Constrained by politicians, the RBI's tightening has been timid. In the past year interest rates have risen by less than the rate of inflation has, so rates have fallen in real terms. Relative to consumer-price inflation, the overnight lending rate of 7.75% is close to zero in real terms. That is much lower even than China's real benchmark lending rate of 3.6% (only China's deposit rates are lower). Indeed, India probably has the lowest real interest rates of any major economy, despite having one of the world's fastest growth rates. Without more tightening, expect the sweltering heat to continue.

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America's economy

# Checking the engine

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From The Economist print edition

**Is the worst already past, then?**

Get article background

A QUICK break, then back on track. To many on Wall Street, America's slowdown looks more like a pit-stop than a protracted stall. Yes, the economy ground to a halt in the first three months of the year, growing by a mere 0.6% at an annual rate. But judging by the most recent spate of statistics, it is revving up again nicely. Job growth is strong, manufacturing is on the mend and, by some measures at least, even the housing market is showing signs of life. Most forecasters expect output to grow by an annualised 2.5% or more in the second quarter.

Financial markets have mixed feelings about the continuing strength. American share prices fell sharply on June 5th and 6th as investors priced in the risk that stronger growth would make an interest-rate cut less likely. Yields on ten-year Treasury bonds rose past 5% during trading on June 7th. The price of federal-funds futures suggests little chance of a rate cut from the Federal Reserve this year.

AP

**Still rolling along—just**

Is all this brouhaha justified? In the short term, yes. The economy is bouncing back from its first-quarter funk because that weakness was exaggerated by several temporary woes. The decline in homebuilding dragged down growth, much as it has done for the past year. But firms also pared back their stocks, exports fell and government spending slowed. These setbacks are likely to be reversed quickly. Inventories are now lean and, with the rest of the world economy booming, American exports ought to do well.

Looking ahead, however, a bit more caution seems warranted. The housing slump is not yet yesterday's news. Although new home sales soared in April, the less volatile statistics are still uniformly grim. Sales of existing family homes fell sharply the same month, as did the number of permits for building new homes. The backlog of unsold houses remains high, and rising mortgage rates may further dampen demand.

All of which suggests that homebuilding is unlikely to recover soon, although the pace of decline may slow. More important, it bodes ill for house prices. For the moment, the state of house prices depends on what measure you use. The National Association of Realtors estimates that the typical family home was worth 0.8% less in April than a year earlier. This measure, however, does not take into account variations in the quality of homes sold.

Two other gauges do adjust for quality differences, mainly by dealing only with repeat home sales. One is the quarterly series published by the Office of Federal Housing Enterprise Oversight (OFHEO), a regulator. This index, which *The Economist* has long used in its quarterly round-up of global house prices, suggests American homes were worth 4.3% more in the first quarter of 2007 than they were a year earlier. That is the smallest annual increase for nine-and-a-half years (see table).

Another measure based on repeat sales suggests prices are falling. The S&P/Case-Shiller national index fell by 1.4% in the year to the first quarter, the first drop since 1991. The monthly composite index for ten cities, included for the first time in our table, fell by 1.9% in the year to March.

The difference between the OFHEO and Case-Shiller figures

arises largely from the treatment of expensive homes. The OFHEO index includes only transactions involving mortgages backed by the lenders it oversees, Fannie Mae and Freddie Mac, which are capped at $417,000. The Case-Shiller measure has no upper limit and gives more weight to higher-priced homes.

Since the price of expensive homes, particularly in once-fizzy markets such as California, is falling fastest, the Case-Shiller measure probably paints the more accurate picture. And judging by the price of futures contracts based on the Case-Shiller composite index, investors expect house prices to fall further.

The big question is how this will affect consumer spending. So far, the answer has been: not much. In the first three months of the year consumer spending rose at a blistering annual pace of 4.4%. More recently, however, consumers seem to be flagging despite the strong labour market. Retail sales fell in April. Part of the reason is pricier petrol, but flatter house prices will also dampen the spending enthusiasm. With business on a roll, America's economy is no longer stalling. But with house prices heading down, neither is it likely to roar ahead.

**_The Economist_'s house-price indicators**

% change

| | Latest | Q1 2006 | 1997-2007* |
|---|---|---|---|
| | on a year earlier | | |
| South Africa | 15.5 | 16.4 | 369 |
| Singapore | 13.8 | 4.7 | na |
| Denmark | 12.3 | 25.0 | 118 |
| New Zealand | 10.6 | 14.8 | 114 |
| Britain | 10.3 | 4.5 | 205 |
| France | 9.7 | 14.8 | 137 |
| Belgium | 9.5 | 12.2 | 129 |
| Canada | 9.0 | 7.1 | 72 |
| Australia | 8.6 | 3.9 | 139 |
| Sweden | 8.0 | 13.5 | 126 |
| Ireland | 7.4 | 11.2 | 251 |
| Spain | 7.1 | 12.0 | 184 |
| Italy | 6.2 | 6.7 | 92 |
| Netherlands | 6.2 | 5.4 | 97 |
| China | 5.9 | 5.4 | na |
| Hong Kong | 4.8 | 1.8 | -41 |
| United States (OFHEO) | 4.3 | 12.6 | 103 |
| Switzerland | 2.5 | 1.3 | 17 |
| Germany | 0.3 | 1.5 | na |
| Japan | -1.6 | -3.8 | -32 |
| United States (Case-Shiller) | -1.9 | 13.8 | 175 |

*Or latest

Sources: ABSA; ESRI; Hypoport; Japan Real Estate Institute; Nationwide; Nomisma; NVM; OFHEO; Quotable Value; Stadim; Swiss National Bank; Standard & Poor's; government offices

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Buttonwood

# Disappearing deficits

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**A strategic dilemma for pension funds**

THE mixture of soaring stockmarkets and falling bond prices, though upset this week, still poses a puzzling question. Is it a sign that economic growth, particularly in America, is rebounding? Or that Asian investors are abandoning bonds in favour of riskier assets?

Whatever the answer, for one group it is unquestionably good news: final-salary pension schemes. Higher share prices boost their assets, while lower bond prices (higher yields) reduce their liabilities, since future pension payments need to be discounted by bond yields to calculate their present value.

The result, according to Aon Consulting, is that the accounting deficit of the 200 largest British pension funds fell to only £4 billion ($8 billion) at the end of May, a £100 billion improvement in just over four years. A similar trend is visible in America, where, according to the Milliman consulting firm, the aggregate pension deficit of the leading 100 final-salary schemes had almost disappeared at the end of 2006.

The pension-fund industry has thus enjoyed the reverse of the “perfect storm” it suffered in 2000-02, when both stockmarkets and bond yields fell sharply. Corporate funds had bet heavily on shares during the 1990s and strong returns had led many to take contribution holidays; within three years, they faced a crisis.

The return of many schemes to surplus gives them an opportunity that they spurned at the end of the past decade. In theory, as well as in the way they are treated by accountants, pension liabilities are bond-like. So pension funds could match their liabilities by switching out of shares and moving into bonds.

This is a controversial subject. Historically British and American pension funds have favoured equities for three main reasons. First, it was assumed that, over the long run, profits, dividends and share prices would rise at least in line with inflation, as would wages (and therefore pension payments). Second, equities may be volatile but they have usually returned more than bonds over the long run. Pension funds could afford to be patient and collect this premium.

Third, and probably more important, if equities can yield a higher return, the firms that pay for pension schemes can pay less into the fund. The market will do part of the work for them. In America firms are still allowed to assume a high rate of return on their pension-fund assets, and then count that return (whether it is achieved or not) in current profits.

In the late 1990s, however, the actuaries who advise pension funds began to question this reasoning. If pension liabilities are bond-like, then buying equities is a mismatch. Shareholders are presumably investing in companies because of their underlying businesses, not their ability to play the stockmarket.

Furthermore, academics such as Zvi Bodie of Boston University argued that equities were riskier than pension funds assumed. Investors can insure against poor stockmarket performance by buying options. If it were true that equities always outperformed bonds over the long term, long-run options would be cheaper than short-term ones, but the reverse is the case. This is because on those few occasions when equities do badly over the long run, they do really, really badly.

Pension funds reacted to these arguments by echoing the cry of St Augustine: “Lord, give me chastity, but not yet.” In the late 1990s they did not want to buy bonds, because equities were doing so well. In 2002 they did not want to do so because they would be “locking in” their deficits (since bonds would rise only in line with their liabilities).

So British pension funds have been moving only gradually into fixed income. According to a UBS study, the average British pension fund had 24% of its assets in bonds last year, against 14% in 1996. But other

countries' pension funds have been moving the other way; in the Netherlands, the bond proportion has fallen from 60% to 39% over the past decade. Instead of bonds, pension funds are getting excited about “alternative assets” such as hedge funds and private equity.

One reason is that there are not enough bonds to go round. Long-dated inflation-linked bonds are probably the best match for pension liabilities and demand for them is so high that, in Britain, real yields are remarkably low.

And even inflation-linked bonds do not cover investors against all risks, particularly increased longevity. One British company that did switch into bonds at the end of the dotcom bubble was Boots. Today, its trustees are battling with its private-equity acquirers over how its £300m pension deficit should be filled.

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Private stockmarkets

# Hail the hybrids

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**Share offerings get a little less public**

PUBLIC or private? This question vexes chief executives more than any other these days. But does the choice have to be so black-and-white? For those not convinced that it does, a new breed of private exchange is gaining popularity where shares are not sold in public offerings but instead are placed with large investors, who are free to trade them later in the secondary market.

Banks and exchange operators alike are taking an interest in creating such hybrid marketplaces. Goldman Sachs recently launched an electronic market called GSTrUE (Tradable Unregistered Equity), selling 15% of Oaktree Capital Management for $880m, much of it to a cluster of hedge funds. Other Wall Street giants, including Merrill Lynch and Morgan Stanley, are developing similar platforms.

NASDAQ, meanwhile, is waiting for regulators to approve an upgraded version of its Portal trading system, which it hopes will become a central clearing house for so-called 144A securities. These are not subject to the same registration and disclosure rules as normal shares, but can be sold only to sophisticated institutions, up to a maximum of 499 investors per issuer. The market is booming: last year, for the first time in America, companies raised more from 144A placements than they did on the three largest stock exchanges.

Given that NASDAQ is one of those exchanges, its promotion of Portal might seem odd. But the idea is to complement public markets, not eclipse them, says John Jacobs, who oversees the platform. Private exchanges are unlikely to see a lot of trading, he points out, because many of the big investors that are allowed to use them will want to hold on to their shares.

This stability is one attraction for issuers. Another is the possibility of raising capital while avoiding the less desirable trappings of full public ownership, such as class-action litigation, compliance with the Sarbanes-Oxley law on corporate governance, and pressure to make the quarterly numbers. One reason Oaktree opted for GSTrUE was that it did not want to be forced to show steady growth when its business is inherently volatile. Other alternative money managers are considering similar moves, as are some family-owned firms that need capital but fear becoming the targets of activists. The trend may also benefit private-equity and venture-capital funds, since it should make it easier for them to cash out of companies that are not yet ready to enter, or return to, fully public markets.

The buyers may have some worries, however. Restricted offerings sometimes come at a discount, and may be the only way to get a piece of promising firms that shun the limelight. But private stock is less liquid than the public variety and offers fewer protections.

As more unregistered share-trading platforms are unveiled, pressure will build on them to join forces, or at least to unify clearing and settlement. The drawback of Goldman's proprietary system is that it relies on a single marketmaker, which depresses liquidity.

NASDAQ fancies itself as the industry standard but faces difficulties of its own. SIFMA, a securities-industry trade group, has asked for approval of Portal to be withheld until several “vague and incomplete” elements are clarified. The market is undergoing exactly the sort of scrutiny that companies using it will hope to avoid.

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Oil wealth

# The petrodollar puzzle

Jun 7th 2007 | LONDON AND WASHINGTON, DC
From The Economist print edition

**Where do the Gulf states invest their immense wealth?**

THERE is no crime involved, but the mystery of the petrodollar billions is worthy of Sir Arthur Conan Doyle. Thanks to high oil prices, the Gulf states' coffers have been bulging. From 2002-06, the six countries of the Gulf Co-operation Council (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates) earned about $1.5 trillion from oil exports, twice as much as they made during the preceding five years. Around $1 trillion of that money was spent on imports. The rest—a cumulative current-account surplus of $542 billion—went abroad. But where?

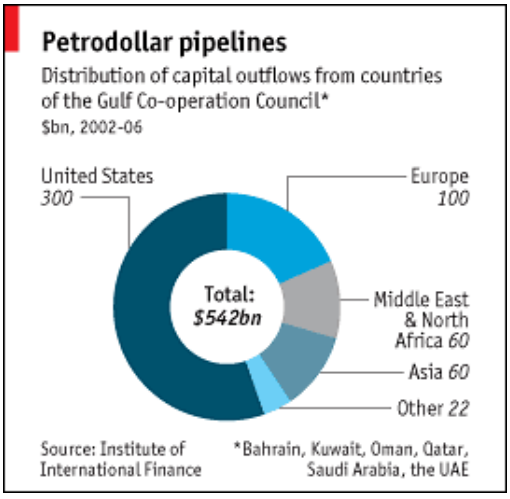
The answer is a matter of avid curiosity, particularly among hedge funds that take big bets on international asset prices. Along with China, the Gulf states are the thrifty counterparts to America's gaping saving shortfall. A shift in their appetite for dollar assets could send the greenback tumbling and push up American interest rates. Hedge-fund managers try to track the flow of petrodollars believing that they are likely to be more volatile than other sources of global liquidity, such as Asian reserves, and are less likely to sit quietly in American Treasuries. They may also be super-charged with leverage through investments made in hedge funds and private-equity firms.

It is an intriguing guessing game. The Gulf countries themselves provide virtually no information, so any estimates must be pieced together from foreign sources.

At its recent annual meeting in Athens, the Institute of International Finance (IIF), a global bankers' group, tried its hand at such financial detective-work. Its analysts began with published statistics, such as those furnished by the American Treasury's International Capital System (which provides information on foreign holdings of American securities); the Bank for International Settlements (which tallies figures on foreign-owned bank deposits); and Bloomberg's database on global mergers and acquisitions.

These sources show some $260 billion of capital flows from Gulf states over the past five years, or about 48% of the group's cumulative surplus. This half-picture points to several trends. Gulf investors have become less keen on bank deposits; they are big buyers of American shares and government bonds. And, increasingly, they are direct buyers of foreign companies, particularly European ones.

To find the remaining $280 billion, the IIF resorts to educated guesswork. It believes a large chunk is likely to be invested in America. The Treasury's figures do not include bonds or shares bought through a foreign intermediary, such as a London-based investment bank. They therefore understate the Gulf states' holdings, perhaps by as much as $100 billion over the past five years, the IIF conjectures. Some of the surplus is staying close to home in the fast-growing market for *sukuk*, debt-like instruments permitted under Islamic law, which does not allow the payment of interest. Some $21 billion in *sukuk* was issued in 2006, up 46% from the year before.




The IIF guesses that some $100 billion, or 20% of the five-year surplus, went to Europe (see chart), buying bonds and shares as well as firms and property. Another $60 billion may have gone to Asia, where Arab oil exporters are pouring money into infrastructure projects as well as buying property and firms. Hedge funds may yearn for more clarity, but these are deductions that would have impressed Dr Watson.

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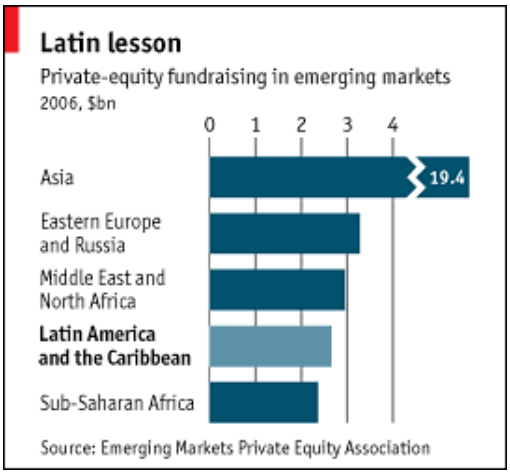
**Private equity in Latin America**

# Once bitten, twice shy

Jun 7th 2007 | BUENOS AIRES
From The Economist print edition

**It takes a long time for buy-out firms to forgive and forget**




THE closest stockmarket investors have been to paradise in recent years has been Latin America. The average mutual fund buying shares in the region has risen by 38% a year since 2004, a return that dwarfs the performance of all other fund categories. Yet while Latin America's public indices continue to soar, the private-equity firms you might expect to pounce on such assets have largely remained on the sidelines. According to the Emerging Markets Private Equity Association (EMPEA), based in Washington, DC, new private-equity investment in Latin America totalled just $2.7 billion last year—a figure barely superior to that of sub-Saharan Africa, and less than one-seventh of the amount destined for Asia (see chart).

Private-equity firms may have long-term vision, but they need to be sensitive to the liquidity of the markets they choose in case of a crisis. Private-equity investors in stable regions will hope to find buyers for most of their assets at any point in the economic cycle. By contrast, those in unpredictable countries with underdeveloped stock exchanges may find themselves unable to sell their holdings at all when disaster strikes.

Many—though not all—Latin American economies tend to be in this second class and, as a result, the experience of buy-out firms in the region has been disastrous. When virtually all Latin American governments embarked on market-oriented reforms in the early 1990s, high private-equity inflows soon followed. Many of those investments were maturing just as the region's economic climate worsened, thanks to currency devaluations and crippling recessions. Although stockmarket investors could at least cut their losses, many buy-out funds were trapped and went down with their holdings. It has left bitter memories that still haunt private-equity funds.

Today, despite the region's progress, it remains far less attractive to private-equity firms than the larger, more consistent, and more financially sophisticated economies of Asia—though the situation it is far worse in smaller countries than it is in Brazil and Mexico. Very few Latin American economies have ever strung enough consecutive years of growth together to assuage private-equity investors' fears of being caught in the next crisis. The piddling size of their stockmarkets in relation to GDP provides little reassurance that it will be easy to sell the companies back to the public. In addition to this elevated liquidity risk, Latin America's governments are seen to be more interventionist than Asia's, and the economies less transparent—they have always been characterised by a high incidence of informality, which exposes owners to legal risks and makes valuing a firm far more difficult. Moreover, the region's credit markets are still in their infancy, making it difficult for private-equity firms to acquire the leveraged financing that is a big component of their strategies elsewhere. Hedge funds, mutual funds and property investors are much less affected by these risks.

Private-equity involvement in Latin America certainly has nowhere to go but up, and there are signs that it could expand rapidly. In 2006 buy-out firms invested twice as much in the region as they did in 2005. But to benefit further, Latin America needs three things: more regional integration, to allow businesses to extend across borders; a big expansion of its capital markets, which would help private equity enter and exit positions; and a lengthy record of robust economic growth. Private-equity firms themselves could play their part in helping Latin America to do some of this. For the moment, it seems, they prefer to wait and see.

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Mafia money

# The toughest job in finance

Jun 7th 2007 | PALERMO
From The Economist print edition

**A new man to tackle economic crime in Sicily**

FORGET the floppy caps and shotguns. Nowadays *Cosa Nostra*'s goodfellas are likely to wear sharp city suits. They know almost as much about Black-Scholes as they do about blackjack and blackmail. The Mafia has moved on.

But so have the authorities. On May 30th a dedicated anti-Mafia economic-crime unit got up and running in Sicily with the appointment of Antonio Ingroia, an experienced anti-Mafia prosecutor. And not before time. Around 20 years ago, Giovanni Falcone, a senior prosecutor whom *Cosa Nostra* murdered in May 1992, gave warning that the Mafia was pouring money into the stockmarket, which probably seemed like the height of financial sophistication at the time.

Now that dirty money can be more easily traced through stockmarkets, the Mafia's asset-management strategy has shifted into the sort of complex financial instruments that even the most financially astute regulators have trouble keeping tabs on. “The wealth just vanishes. It is no longer static. It has become mobile. *Cosa Nostra* employs the sharpest consultants to move its money between many types of financial instrument and financial centres,” laments Mr Ingroia.

The team in Palermo reckons a huge amount of Mafia assets are swirling around undetected. Earlier this year the chief prosecutor in the city's appeals court reported on confiscation proceedings against one old-style *consigliere.* The Uditore crime family's adviser had assets estimated at about €1 billion ($1.35 billion), including the largest single shareholding in one of Sicily's banks.

Other judicial districts in southern Italy, as well as Rome, will be keenly following the unit's progress. Yet its efforts are unlikely to match *Cosa Nostra*'s ability to safeguard its wealth. Inspectors at the central bank and experts at an agency that monitors cross-border financial transactions will be available to help Mr Ingroia and Roberto Scarpinato, another prosecutor, but they will have few resources of their own. “Alas, the Mafia is far ahead of us,” admits Mr Ingroia.

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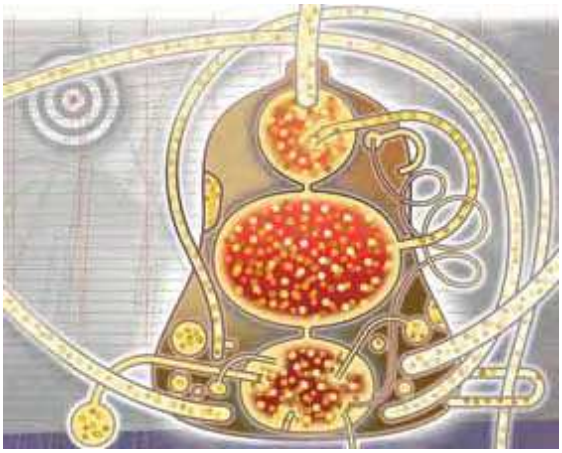
Economics focus

# What goes around

Jun 7th 2007
From The Economist print edition

**Might central bankers soon start to peer at the monetary dials again?**

Jac



INFLATION is always and everywhere a monetary phenomenon, said Milton Friedman, the economist who revived monetarism in the 1960s and 1970s. Everywhere, it would seem, but at today's central banks. Since the brief monetarist heyday of the early 1980s attempts to achieve price stability by controlling money have been abandoned. Inflation targeting is the new gold standard, largely guiding even the conduct of the European Central Bank, which retains a “monetary pillar”. Jean-Claude Trichet, the ECB's president, cited vigorous money growth after the bank raised its base rate to 4% on June 6th. But its rate-setters are at odds about how to interpret the monetary figures and the ECB's general approach has been far from monetarist.

The backlash was rooted in the disappointments monetarism caused when it was put into effect almost three decades ago. As a way to administer some nasty disinflationary medicine the doctrine worked. The adoption in 1979 of monetary targets by Paul Volcker, chairman of America's Federal Reserve, was a turning point in the post-war battle against inflation. In Britain, Margaret Thatcher's espousal of monetarism eventually brought inflation down with a bump in the early 1980s.

But whatever its short-term usefulness for clamping down on inflation, monetarism proved an unreliable lodestar for steering the economy. Its central claim was that faster rates of monetary growth led predictably to higher inflation. But that held true only if the demand for money was stable. In that case, people would get rid of their excess holdings by stepping up purchases first of financial assets and then of goods and services, so driving up inflation if there was no spare capacity in the economy. In the event, the demand for money turned out to be anything but stable, as a disruptive stream of financial innovations kept shifting the amounts of money people wanted to hold.

Put another way, if the economy were to be managed through monetary targets, money had to circulate at a fixed velocity (the ratio of nominal GDP to the stock of money). In practice, that speed turned out to be highly variable. Not only that, but it was unclear what exactly the target should be, since money could be defined in different ways: narrowly, as cash and demand deposits held with commercial banks, or broadly, including savings deposits with other financial institutions. And if central bankers sought to control money, however defined, by targeting the monetary base—cash in circulation and commercial-bank reserves held with the central bank—they lost control of the short-term interest rate, which might move erratically and damage the economy.

Whereas monetarism buckled as a policy, inflation targeting has proved far more effective. Instead of seeking to control inflation indirectly, central banks aim expressly at price stability. Instead of trying to meet monetary targets, they use their own money to determine short-term interest rates. These are set

to ensure a broad balance between overall supply and demand over the medium term (the next two years or so) thus keeping the economy on a path consistent with price stability. Tethering inflationary expectations is vital under this regime, which is why central-bank credibility now matters so much. If workers and firms believe that the inflation target will be hit, then short-term inflationary shocks, such as the recent jolt to energy prices, will be absorbed rather than setting off a wage and price spiral.

Whereas inflationary expectations have moved centre-stage, monetary developments have been reduced to a walk-on part. Central banks now generally see broad money as passive, responding to the economic weather, not making it. Even if money is sending a signal, it can often be intercepted by what is happening to the prices of financial assets. Indeed, Michael Woodford, an economist at Columbia University, argues that inflation can to all intents and purposes be modelled and controlled without paying any attention at all to money.

## Follow the money

Has the pendulum swung too far from monetarist overkill to monetary neglect? In a recent lecture, Mervyn King, the governor of Britain's inflation-targeting central bank, seemed to think so. He stressed that shifts could occur in not just the demand for money, but also in its supply—for example, through banks' readiness to lend. Such developments matter because much spending is constrained by the availability of credit. Mr King highlighted two such episodes in Britain, in the early 1970s and the second half of the 1980s, when a supply-induced acceleration in monetary growth presaged a pick-up in inflation. The Bank of England has started a survey to monitor credit conditions and is researching how to tease out whether monetary expansion is stemming from changes in supply or demand.

In general, the message from money is likely to be most useful in the longer term, although developments in credit may prove helpful to central banks in the shorter term. But there is now an added complication in interpreting that message. It is no longer enough to look at what is happening to money in any one country. As financial markets become ever more linked, asset prices are increasingly set by international investors and thus reflect global monetary conditions. Indeed, there is growing unease among central bankers that the collective effect of national monetary policies may have contributed to today's frothiness in markets round the world and that this may lead to either higher inflation or a financial crisis when bubbles eventually burst.

Money, if not monetarism, is making a comeback in the way central bankers think about and carry out policy. That is a good thing. Monetarism failed the operational test in the early 1980s. But a host of examples stretching back over the centuries bear witness to the long-term link between monetary growth and inflation. Money still matters—as it always has done.

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Cancer therapy

# Take aim...

Jun 7th 2007 | CHICAGO
From The Economist print edition

**Drugs directed at precise molecular targets are helping cancer patients live longer. They have yet, however, to fulfil all expectations**

Stephen Jeffrey

RESEARCHERS have been promising a revolution in cancer treatment for a long time. More effective and less toxic drugs are expected to replace old-fashioned chemotherapies. The approach is called targeted molecular medicine and the idea is to substitute the blunderbuss of chemotherapy with the sharp-shooting of a chemical that interrupts a single molecular pathway—one that is crucial for the survival of cancer cells, but not normal cells.

The problem is that this pathway will vary from cancer to cancer. You therefore have to find out which pathway is crucial in a cancer before you can make the drug. And once armed with the drug, you have to devise tests that reveal what type of cancer someone has, in order to find out whether the drug will work in his case. Even then, there is no guarantee it will work well—as three large clinical trials unveiled at this week's meeting of the American Society of Clinical Oncology, in Chicago, sadly demonstrate.

It is not that any of the trials failed, exactly: all added weeks or months to the lives of those taking the new therapies. It is rather that physicians were hoping for years of extra life. There are useful lessons to be learned from these trials. Unfortunately, the main one is that molecular medicine is harder than it looks.

The tumours treated in the three trials were head-and-neck cancer, liver cancer and kidney cancer. One relied on drugs intended to block the growth of the tumour itself. In the other two cases the idea was to block the growth of blood vessels into the cancer. Without these extra vessels, a cancer cannot grow. That reduces both the threat from the primary tumour and the risk that it will metastasise, spreading secondary tumours around a patient's body.

The head-and-neck trial was conducted by Jan Vermorken of the University of Antwerp. Dr Vermorken did not abandon standard chemotherapy completely. He did, however, combine it with Erbitux, an antibody that binds to and thus disables a protein that promotes the proliferation and growth of cells. The 222 patients treated with Erbitux and chemotherapy survived for an average of 40 weeks. The 220 treated with chemotherapy alone lived for 30 weeks. Viewed positively, this ten-week increase in survival is the first improvement in prognosis for those with head-and-neck cancer that has been seen for 25 years. On the other hand, it is hardly a cure.

Josep Llovet of the Mount Sinai School of Medicine in New York had a similar outcome with sorafenib, an

agent aimed at a protein that promotes blood-vessel growth. His patients had advanced liver cancer, which is untreatable. Like Erbitux, sorafenib works. Indeed, it prolongs life by almost exactly the same amount of time as the head-and-neck treatment—from 32 weeks for those in the control group, who were given a placebo, to 43 weeks for those receiving the drug. This is a big advance, given that 100 previous trials of other potential drugs had failed completely. But again, it is not a cure.

The new approach did a bit better against kidney cancer. Avastin, another blood-vessel-growth blocker, increased average survival from 22 weeks to 42 weeks when it was added to the standard treatment by Bernard Escudier of the Gustave-Roussy Institute, in Paris. But that was still not what had been hoped for.

## Off target

David Gandara of the University of California, Davis, is looking for ways to improve the strength of these drugs. Part of the problem, he thinks, is that although the drugs on trial have been designed to attack particular targets, none of the trials was based on selecting patients whose tumours were known to be producing the target proteins. Although tumours are classified anatomically (eg, head-and-neck, liver, kidney), these tissues can become tumorous in many ways, only some of which will be susceptible to a particular drug. If the pathway attacked by that drug is not active in a patient, the drug is unlikely to curb his tumour's growth.

In fairness to the researchers, the trials were conducted this way because quick, reliable tests to identify the molecular nature of these cancers do not exist. For the drugs to be deployed to greatest effect, such tests would need to be developed.

But there is another, deeper, problem. Even when a drug's mechanism looks obvious, it sometimes is not. Erbitux, for example, binds to a cell-surface protein called epidermal growth-factor receptor (EGFR). This controls growth and survival pathways in cells. Many types of tumour produce far more EGFR than normal cells do, and one effect of that is to stimulate the proliferation of tumour cells. Researchers thought this meant the receptor would be central to the survival of those cancer cells, but that has not consistently been so.

Erbitux slows the progression of colorectal cancer, but the drug's activity does not correlate with expression of EGFR in such tumours. Its activity does, however, correlate with EGFR expression in lung cancer, according to data presented at the conference by Roy Herbst of the M.D. Anderson Cancer Centre in Texas. The cause of this contradiction is mysterious.

Even when the level of a molecule seems to predict a drug's success, a test may prove unreliable. One of the biggest success stories of targeted therapy is a drug called Herceptin. This dramatically reduces the risk of relapse in breast-cancer patients whose tumours make a protein called Her2/neu, and only those women whose tumours produce this protein will respond to the drug.

That was proved two years ago, when three large trials showed Herceptin's value in treating early-stage Her2-positive breast cancer. However, recent re-tests of tissue taken at the time, and reported at the meeting, suggested that 10% of the tests which were originally positive for Her2/neu appeared negative on re-testing.

That is surprising, as many of these women responded to therapy. Nor is there any question over Herceptin's specificity—that is now well established. What is called into question is the reliability of the test. If a woman is denied treatment on the grounds that she could not possibly benefit, the basis of that denial had better be rock-solid. For the moment, the suggestion is that those who test negative should get a second opinion. But it all goes to show that what looks clean and simple in theory can be very complicated in practice.

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Molecular medicine

# Peekaboo

Jun 7th 2007
From The Economist print edition

**The search for genes that cause disease bags some new trophies**

ALTHOUGH cancer has become the proving ground of molecular medicine—the idea that proteins characteristic of a disease are the ones to aim at when designing therapies—the hope is that the approach will be more widely applicable than that. The first step towards realising this hope, of course, is to work out the nature of the molecules in question—and that is the purpose of a paper published this week in *Nature* by the members of the Wellcome Trust Case Control Consortium.

One of the goals of the Human Genome Project was to allow researchers to link versions of individual genes (known as alleles) with particular diseases. This has proved a lot harder than expected, because if lots of genes contribute to a disease, the signal from each is inevitably weakened. That means only large projects have much chance of working out what is going on. Hence the decision of Britain's biggest medical-research charity to put together the consortium that has just reported.

The researchers, all 256 of them, looked at seven diseases: bipolar disorder, coronary-artery disease, Crohn's disease (an inflammation of the gut), hypertension, rheumatoid arthritis, type I diabetes (the sort that develops early in life) and type II diabetes (the sort that develops later). They studied 2,000 people with each condition and compared them with 3,000 symptom-free individuals. In each case they used devices called gene chips to look for associations between a disease and one or more of 500,000 so-called single-nucleotide polymorphisms (SNPs). These are places where the DNA of some individuals differs from that of others by a single molecular letter of the genetic code. Some SNPs occur in genes themselves. Others are found in the DNA between genes. But all act as markers that may be associated with different alleles of the same gene.

The result was the discovery of 24 places in the genome so strongly associated with a disease that there was only one chance in 2m of the link being accidental. A further 58 associations had less than one chance in 100,000 of being wrong. The richest targets were Crohn's disease and type I diabetes, with nine and seven near-certainties respectively.

Some of the candidates corresponded to known genes. Others did not, and the next phase of the project will be to search the areas of the genome that the SNPs point at for likely genetic suspects. Once these are discovered, the proteins they encode can be added to the lists of those that are targets for the molecular medicinal drug-makers.

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Cosmology

# A lithium imbalance

Jun 7th 2007
From The Economist print edition

**The universe's chemistry looks wonky. That may change the laws of physics**

OUT of chaos comes order. Or at least it did in the early universe. Moments after the Big Bang, space was a hot, dense, seething froth of elementary particles and light. As the universe expanded and cooled, some of these particles merged to form neutrons and protons. When it had cooled further, these protons and neutrons were able to get together to form the nuclei of the lightest elements—hydrogen, helium and lithium. And so the stage was set for stars, nuclear reactions, chemistry and, eventually, life.

The exact abundances of the three lightest elements are an important test of the so-called Standard Model of physics—the list of fundamental particles found so far and the forces that link them. The Standard Model makes clear predictions for the ratios of various isotopes of all three. It gets the hydrogen and helium right. The values for lithium, though, are not.

This discrepancy is known to cosmologists as the “lithium problem” and, until now, there has been no satisfactory explanation for it. But Maxim Pospelov, of the Perimeter Institute for Theoretical Physics in Waterloo, Ontario, thinks he has one. And if he is right, he may have opened a window on to a theory of physics known as supersymmetry, which goes beyond the Standard Model.

Dr Pospelov's idea, which he explains in a paper in *Physical Review Letters*, depends on the main prediction of supersymmetry—or SUSY, as it is known to physicists. This is that each of the particles in the Standard Model has a heavier doppelganger known as its “superpartner”.

If these superpartners do exist, SUSY suggests the Big Bang would have produced a lot of them. Dr Pospelov has taken this insight one step further. According to his calculations, the superpartners would have had a profound effect on the ease with which certain elements were produced in the early universe. This is because they would have combined with protons and neutrons in ways that made it easier and faster for other nuclear reactions to occur. Once they had had their catalytic effect, they would have split back off again and gone their own ways.

The most dramatic effect would have been on the formation of lithium, an element that has two isotopes. One of these has three protons and three neutrons ({+6}Li). The other has three protons and four neutrons ({+7}Li). According to Dr Pospelov, {+6}Li would have formed 100m times faster in the presence of the heavy particles of supersymmetry than in their absence. In effect, {+6}Li should not exist unless these extra particles are real. Meanwhile, reactions that deplete {+7}Li should also have proceeded faster in a supersymmetric universe than in one that is governed only by the Standard Model. So if supersymmetry is true, there should be less of this isotope around than the Standard Model predicts.

This is exactly what astronomers have been observing for years in the real universe. Although {+6}Li is rare, it does exist. As for {+7}Li, astronomers have measured only one-third to one-half of what the standard theory suggests should be there.

Until now, attempts to explain away the lithium problem have involved secondary modifications of the amount around. The extra {+6}Li has been brushed away as the result of energetic particles from space crashing into the gas from which stars form. The lack of {+7}Li, meanwhile, has been blamed on over-hungry nuclear reactions in stellar cores.

Dr Pospelov's catalytic mechanism, by contrast, explains both discrepancies in one fell swoop. It also makes predictions about the detailed properties of the supersymmetric partners—and, as luck would have it, suggests that although they cannot be made on Earth at the moment, they should be in range of the Large Hadron Collider, a particle accelerator being built near Geneva, which should open for business later this year. It should not, therefore, take long to find out if his explanation for the lithium problem is correct. If it is, he can claim to have found SUSY's traces before the particle physicists did.

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Archaeology

# Rates of exchange

Jun 7th 2007
From The Economist print edition

**Some snail shells from a Moroccan cave could be humanity's earliest known attempt at art or, possibly, a currency**

EXACTLY when humanity became artistic is much debated by palaeo-anthropologists. But most acknowledge it was at least 75,000 years ago. The reason is the discovery, in 2004, of some peculiar seashells of that age in Blombos, a seaside cave in South Africa.

Oxford University

**Jewels in the crown? Or dollars in the making?**

The shells are peculiar because they seem to have been fashioned into beads. They bear traces of red ochre, a pigment. They have been purposefully perforated, presumably to be strung together. And friction marks indicated that they did, indeed, once form part of a necklace or bracelet.

Now, though, some similar but even older beads have turned up at the other end of Africa, in Morocco. In this week's *Proceedings of the National Academy of Sciences*, Marian Vanhaeren and Francesco d'Errico of the National Centre for Scientific Research, in Nanterre, France, and their colleagues, describe a haul from about 82,000 years ago. Moreover, Dr Vanhaeren and Dr d'Errico think their discovery does more than push back the beginning of art. They believe it also hints at an ancient human society that may have developed a long-distance system of trade and cultural exchange.

The newly found beads come from a site called the Grotte des Pigeons. This is a large, hillside cavern about 40km (25 miles) from the sea. First Dr Vanhaeren and Dr d'Errico had to prove the snail shells found there could not have arrived by any means other than a human taking them. That meant showing, for instance, that no similar specimens are found in the cave walls, and that no predator of sea-snails could have deposited them there.

Next the researchers demonstrated that stone-age humans had meddled with the shells. Like the Blombos examples, they were all pierced in the same unnatural way and covered in bits of ochre (which distinguished them from every other artefact recovered from the site). And they, too, had abrasion marks near these holes. Finally Dr Vanhaeren and Dr d'Errico dated the shells using four different techniques. All put them at between 74,000 and 91,000 years old, with 82,000 years the most likely date in the middle.

Such strands of evidence are shared with two sites the researchers investigated last year. But the snails from both of those sites—one in Israel and one in Algeria—were originally extracted in the 1930s, before the invention of modern dating methods. Their precise ages are thus debatable. Nonetheless, the Israeli and Algerian snails are probably roughly as old as those in the Grotte des Pigeons.

That the same snail species, *Nassarius gibbosulus*, was used to make the beads in both of the previously excavated Mediterranean sites is curious, but could have been a coincidence. The discovery of *Nassarius* beads at a third site suggests no coincidence is involved. It is more likely that the beads were either simply fashionable throughout the region, or that they acted as currency, as cowrie shells did in some parts of Africa until historical times.

Even more intriguingly, although the beads from Grotte des Pigeons are not from precisely the same species used at Blombos, the two are indistinguishable to the untrained eye. Stone-age South Africans, like their northern cousins, could have chosen any one of hundreds of shell shapes to make into beads, yet they adopted essentially the same fashion. The immense distance between the two ends of the continent makes an ancient African exchange system appear improbable. Then again, a chance predilection for the same beads is unlikely as well.

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Hillary Clinton

# The potential to change the world, at least a little

Jun 7th 2007
From The Economist print edition

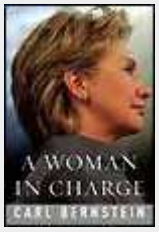
**Two new books on Hillary Clinton tell us quite a lot that is interesting but not much that is surprising**

Her Way: The Hopes and Ambitions of Hillary Rodham Clinton
By Jeff Gerth and Don Van Natta

*Little, Brown; 448 pages; $29.99.*
*John Murray; £20*

Buy it at
Amazon.com
Amazon.co.uk

A Woman in Charge: The Life of Hillary Rodham Clinton
By Carl Bernstein




*Knopf; 628 pages; $27.95.*
*Hutchinson; £25*

Buy it at
Amazon.com
Amazon.co.uk

AFP

“HATE. Fear. Wonder. Even the occasional odd pang of lust (you know who you are).Yes, everybody seems to feel strongly about Hillary Clinton. But is anybody actually doing anything about her?” That is the preamble to the “Hillary Clinton Voodoo Kit”, a book that comes with a doll and pins so you can use black magic to stop her from returning to the White House. When so much that is published about Mrs Clinton is either nasty or unhinged, it is refreshing to find two books that are serious, well-researched and fair.

Jeff Gerth and Don Van Natta's “Her Way” is a competent bundle of investigative reporting by two journalistic heavyweights. Mr Gerth, an ex-*New York Times* man, was the butterfly who started the hurricane of Bill Clinton's impeachment. In 1992 he broke the story of the conflicts of interest surrounding the Clintons' (loss-making) investment in some land in Arkansas. The scandal, known as Whitewater, led to the appointment of a special prosecutor with the power to investigate anything—who then discovered that Mr Clinton had perjured himself about oral sex with an intern. Mr Van Natta is currently an investigative reporter for the *New York Times* (and author of an amusing book on presidents who play golf).

The problem for these two diligent diggers is there is not much left to unearth about Hillary, and nothing that will change many minds about her. We learn, for example, that she and her husband made a “secret pact of ambition”: a plan that he would be president for eight years and she would be president for another eight. Whether this is true or not—and one source denies having said what Messrs Gerth and Van Natta say he said—it fails the test of a truly sensational scoop by not being even slightly surprising.

This book is not unremittingly hostile, but the picture that emerges is not flattering. The authors re-examine old scandals and turn up some new details. Readers are reminded of Hillary's suspiciously colossal profits from trading cattle futures and the way her law practice in Arkansas benefited from her marriage to the governor. Concerning Whitewater, the authors conclude that “[h]er likely indiscretions were altogether modest” but the cover-up nearly derailed her husband's presidency. Her conflict of interest in representing a dodgy financial firm whose regulators were appointed by her husband was more apparent than real, they argue. But this was partly for the ignoble reason that she padded her bills and charged the client for work she had not in fact done.

“A Woman in Charge” by Carl Bernstein is the better book: painstaking, sensitive and elegantly written. It is also more sympathetic. Mr Bernstein, one of the two *Washington Post* reporters who toppled Richard Nixon, tries to psychoanalyse Hillary, starting with her childhood. Life with her father “resembled a kind of boot camp, presided over by a belittling, impossible-to-satisfy drill instructor”. This helped make her tough enough to cope with the rough-and-tumble of national politics and marriage to a rogue.

Mr Bernstein reveals that Bill fell in love with another woman in the late 1980s and asked Hillary for a divorce. She said no. He quotes a ream of conflicting views on the Clintons' marriage. Some who know them well think it a functional arrangement, with him providing the brilliance and her the discipline to pursue their shared political goals. Dick Morris, an estranged adviser, quips that: “She loves Bill and Bill loves Bill, so they have something in common.” Mr Bernstein believes that Hillary, at least, married for love. And he observes that when Bill has publicly humiliated her, she has gained influence, as he has been unable to say no to her.

Would she be a good president? Neither book can answer this question. That is perhaps unsurprising. It

is easy to forget, given her fame, that Mrs Clinton has had relatively little experience actually running things. When Bill was governor of Arkansas, he asked her to fix up the state's woeful schools. She did a good job. As president, he asked her to fix America's woeful health-care system. She failed spectacularly, with a pig-headed refusal to listen to advice that alienated a large chunk of her own party.

Mr Bernstein notes that Hillary is better than Bill at learning from experience. As a senator—a period of her life to which neither book devotes enough attention—she has proven deft at forging alliances with Democrats and Republicans alike. She has sought out and befriended even those who tried most energetically to impeach her husband, prompting one publicly to apologise for having hated her.

But her bipartisanship has made her new enemies, too. Her stance on Iraq has made her something of a hate figure for left-wing bloggers. Messrs Gerth and Van Natta aggressively deconstruct her words and votes on the subject. Though she campaigns to end the war, she refuses to say sorry for voting to authorise it in the first place. She says she based her decision on the best intelligence available to her. But Messrs Gerth and Van Natta contend that she did not read a classified National Intelligence Estimate she had been given before that vote.

Probably Mrs Clinton's most troubling quality is what Mr Bernstein tactfully calls her “difficult relationship with the truth”. Both books provide countless examples of omission, obfuscation and outright lying. But still, Mr Bernstein thinks that with her drive, passion and good intentions Hillary “may have the potential to change the world, if only a little.”

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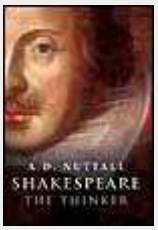
Understanding Shakespeare

# With a glass of dry sherry

Jun 7th 2007
From The Economist print edition

ANTHONY NUTTALL, an Oxford professor who died in January, was a Shakespearean grandee, and only the grandest of grandees is given the freedom to follow their thought wherever it wants to go. His central thesis—that an exceptional cognitive intelligence is at work in Shakespeare's plays—is simple but not generally accepted. Will his book convince readers that Shakespeare was indeed as intelligent as a Newton or a Galileo? Writers are acknowledged to be masters of imaginative and emotional effects but tend not to be regarded as great thinkers.

Shakespeare the Thinker
By A.D. Nuttall

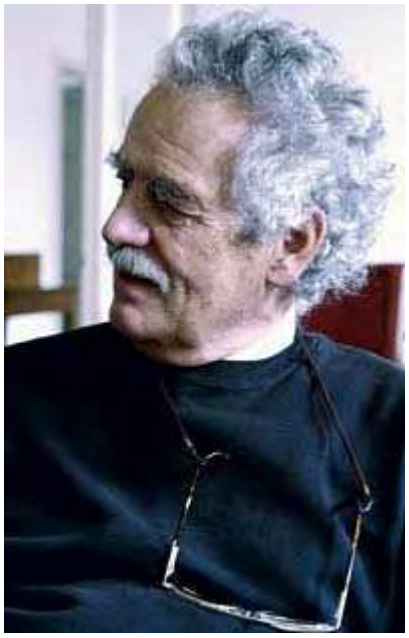



*Yale University Press; 428 pages; $30 and £19.99*

Buy it at
Amazon.com
Amazon.co.uk

His beguiling but loose thesis pretty much allows Mr Nuttall to go where he likes, with little of the drive that comes from the cut and thrust of debate and the need to prove a point in the face of resistance. Grandees rarely feel the need to defend their opinions, so “Shakespeare the Thinker” meanders, but it meanders beautifully. On a leisurely journey through the pages, the reader is frequently charmed, amused and educated. There is not a lot that is completely new, but there are new syntheses and comparisons and any reader will come away enlightened.

Yale University Press



**Nuttall, the seductive tutor**

There are few who live and breathe Shakespeare in the way Mr Nuttall does here. A gifted writer, he can produce a myriad of effects and moods. If you want to meet a master in perfect control of his medium, then look no further: this is beautiful English and an unhurried display of the glorious potential of language. However, if readers want a guide to Shakespeare, then they should look elsewhere, or at least find some way of arming themselves against the seductiveness of the style.

The problem with Mr Nuttall's book is also its attraction. It is a wonderful historical curiosity. Reading it is like entering the world of an old-style Oxford tutorial, where one is entertained by a witty, knowledgeable, elegant talker. It calls for a glass of sherry. Yet all too often, Mr Nuttall affirms but does not explain, and he calls for some kind of instinctive understanding, with the result that if you agree with him, you can luxuriate in a sense of shared, mutually confirming, superiority. Yet if you probe the tempting statements, they often fall apart.

The experience of reading the book is curiously unthinking. The reader is invited to assent and admire; not to challenge. To take one small but characteristic example, this is Mr Nuttall on one of Shakespeare's most popular comedies: “‘As You Like It’ is, then, true pastoral. Indeed it is the greatest pastoral in the English language.” As a starting point for playful dinner-party conversation the phrase has its merits, but, as a clue to understanding the play, it is remarkably unhelpful. It is never clearly established what makes a great pastoral and the rich tradition of English pastoral is largely ignored. The pastorals of Marlowe, Spenser and Milton, to name only Renaissance writers, are never mentioned, let alone given any consideration.

He denies that he sets up straw men for a good bashing, but this is precisely what he does. He dislikes the critical approach known as New Historicism, but talks about its practitioners as “they”, never giving

names to the wrongdoers, never quoting from them, never allowing them to speak in their own voice and never giving any details or specifics to his attack. You can guarantee that if Mr Nuttall compares another writer with Shakespeare, Shakespeare will come off better, but sometimes those writers were aiming at something different and the texts in question are not really comparable.

Ironically, the ideal reader for “Shakespeare the Thinker” is someone with some pre-existing knowledge and the guts to stand up to the professor. For them, this is a provocative if maddening read. For less confident readers, its seductive accomplishments could be dangerous.

Shakespeare the Thinker.
By A.D. Nuttall.
*Yale University Press; 428 pages; $30 and £19.99*

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**Guantánamo: a lawyer's view**

# Self-defeating

Jun 7th 2007
From The Economist print edition

THE military system erected by the Bush administration to try suspected foreign terrorists (which was brought to a halt on Monday by a crucial legal technicality) is “a farce” says Clive Stafford Smith, a lawyer who has represented 35 Guantánamo prisoners and knows the interstices of the system better than most. It is also, as he argues persuasively, a tragedy. A tragedy for the men seized, violently mistreated and confined without charges. And a tragedy for America and its ability to call for the rule of law.

The author, who writes well, poses provocative questions. To those who say torture is acceptable in cases of the “ticking time-bomb”, ie, to prevent a horrendous terrorist attack, he asks why we did not resort to torture during the cold war to learn what the Soviet Union was up to, at a time when the world seemed to hover on the brink of nuclear annihilation.

He laments that the administration has abandoned the high principles that America set with the Nuremberg tribunals, which accorded even the most venal and reprehensible Nazis open and fair trials. He reminds readers that Harry Truman insisted on the trials, over the objections of Winston Churchill, who simply wanted the Nazi leaders summarily executed.

Even Khalid Sheikh Mohammed, one of Osama bin Laden's top henchmen and a mastermind of the September 11th 2001 attacks, could have been properly tried in an American civilian court, or so Mr Stafford Smith argues. “There was plenty of legitimate evidence against him,” he writes, drawn from diligent intelligence work and from his own boasts on video. But he doubts whether he or other senior al-Qaeda men will be tried. This is not, he argues, because classified intelligence information might be compromised but because the torture to which he says they have been subjected would be exposed.

Bad Men: Guantánamo Bay and the Secret Prisons.
By Clive Stafford Smith.
*Orion; 320 pages; £16.99.*
*To be published in America as “The Eight O'Clock Ferry to the Windward Side” by Nation Books in October*

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Guantánamo: an inmate's view

# A Swiftian tale

Jun 7th 2007
From The Economist print edition

MURAT KURNAZ liked to keep himself fit and worked as a bouncer at discos in Bremen, north Germany. That probably helped him survive five years of humiliation, sleep deprivation and physical abuse in Guantánamo Bay. How this German-born Turk ended up there at the age of 19, becoming an embarrassment for the Turkish and German governments, is the story of this book told by himself (so far only in German) with the help of a co-author.

Funf Jahre meines Lebens: Ein Bericht aus Guantánamo (Five Years of My Life: A Report from Guantánamo)
By Murat Kurnaz and Helmut Kuhn

*Rowohlt; 285 pages; €16.90*

Buy it at Amazon.de

Until 2001 he grew up in Bremen in a pleasant mixture of German and Turkish cultures. His religion began to mean more to him; he grew a beard and found himself a good Muslim wife in Turkey. In October 2001 he suddenly took off for Pakistan, he says to learn more about his faith. He slept in mosques and hung out with fellow believers. Two months later, on his way to catch a flight home, he was detained by security forces and passed on to the Americans. They took him to a detention camp in Afghanistan apparently convinced he was a Taliban fighter. By his account, he was hung up in chains for days, regularly beaten (on one occasion by two members of German special forces) and finally flown to Guantánamo Bay.

AP

**Kurnaz survived with brawn and brains**

Mr Kurnaz recounts his woes, and those of his fellow prisoners, with modesty and compassion. The American guards, male and female, appeared irrationally scared of their prisoners and even more scared of those who were ordering them to make the captives' lives hell. (Only two ever showed respect for the stalwart faith of many of their prisoners).

Hell is rock music played all night and during prayer times; desecrating copies of the Koran; sexual harassment by women; showers that are turned off once your body is soaped; beatings and other punishments, such as weeks of isolation for alleged infringements of ever-changing rules. Mr Kurnaz suspects, and he may be right, that such techniques were learned at the hands of the Viet Cong.

Despite a visit from German intelligence officers in 2002, who concluded that he was “harmless” and might even like to work for them, the German government showed no interest in getting Mr Kurnaz out of a prison that many of its politicians had condemned. Various American “hearings” and tribunals concluded on marginal evidence that he was a Taliban fighter. It took a change of German government in November 2005, and a meeting between Angela Merkel and George Bush, to get things moving. Mr Kurnaz came home in August 2006 a free man.

Yet the justification for letting him rot in Guantánamo is that he was and remains a security risk, even today, according to testimony in January by Frank-Walter Steinmeier, now foreign minister, who had chaired meetings of the country's top security committee during those years. Mr Kurnaz has become a bit of a celebrity, driving around Bremen in a sports car and no longer under round-the-clock surveillance. An investigation into two members of the German special forces on suspicion of causing him bodily harm was dropped last month for lack of clear evidence. Nobody really knows what Mr Kurnaz did or didn't do. But he has written a measured and readable account, which is often even humorous in a Swiftian sort of way.

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By Murat Kurnaz and Helmut Kuhn.
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Thrillers

# Till your blood runs cold

Jun 7th 2007
From The Economist print edition

**Four thrillers to keep you pleasantly frightened**

THRILLER heroes usually fall into one of two categories: plucky everyman figures, plunged into murderous intrigues, or professional killers such as Ian Fleming's James Bond. Even the ruthless Bond had charm, so it is a brave author whose heroine seems not to boast a single redeeming feature. Gina Davies, protagonist of “The Unknown Terrorist”, is a pole dancer. She is a racist and a junkie, coveting designer items and expensive labels. She is obsessed with money, spending her evenings covering herself with $100 bills. Until the day she sleeps with a Muslim man and her world explodes.

Hounded by the media, wanted as a suspected terrorist, Gina goes on the run. Not far in distance, but down into Australia's depths. Her Sydney is an urban dystopia of racism, casual violence and organised crime. But as we learn more about Gina's own troubled history and her loyalty to those she loves, she becomes increasingly sympathetic. The climax is shocking and bloody. The book's plot is not original: Richard Flanagan acknowledges his debt to Heinrich Böll's prescient 1974 work, “The Lost Honour of Katharina Blum”, which also examines the power of the media to destroy a life. “The Unknown Terrorist” is occasionally overwritten but even so, Mr Flanagan is a talent to watch. This is a compelling and disturbing read, lingering long after the final page.

Like Gina Davies, Peter Tyler, the hero of “Restitution”, is forced to go on the run when his life collapses after his wife is murdered. He loses his glittering Wall Street career, his friends and his freedom. This is a first novel by Lee Vance, a retired general partner at Goldman Sachs, who knows New York's financial scene inside out. It is not a flattering portrait. Like all the books reviewed here, “Restitution” has a strong sense of place.

In its later chapters the book evolves from a straight chase-thriller into a tale of international intrigue involving stolen and forged Nazi art, evil Big Pharma and a cure for tuberculosis that could save the world. By then there are too many ingredients in the pot but, nonetheless, “Restitution” is an enjoyable debut. Buy it for the financier in your life.

## When killers grow tired

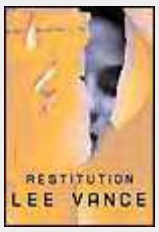
Barry Eisler has enjoyed phenomenal success with his series of John Rain thrillers. Himself a former CIA agent, Mr Eisler brings detailed knowledge of the covert world and his books' verisimilitude boosts their appeal. Rain is a Japanese-American contract killer with a conscience, stealthily killing the world's bad guys for the common good so we may sleep more soundly in our beds. Assassins are popular thriller protagonists. But in “Requiem for an Assassin”, his sixth outing, Rain is getting tired of taking lives and is steadily losing his psychic battle with the iceman, as he dubs his inner killer. Even so, he breaks necks, shoots and karate-chops his way around the world to save his kidnapped friend, Dox. Aficionados will find plenty to enjoy: the action is slick and fast, and the plot tightly choreographed. But somehow the book feels as tired as its protagonist. “Requiem for an Assassin” lacks the depth of the author's previous, more absorbing works, such as its predecessor, “Killing Rain”. It could be Rain's last

The Unknown Terrorist
By Richard Flanagan

*Grove Press; 336 pages; $24.*
*Atlantic Books; £14.99*

Buy it at
Amazon.com
Amazon.co.uk

Restitution
By Lee Vance




*Knopf; 320 pages; $23.95*

Buy it at
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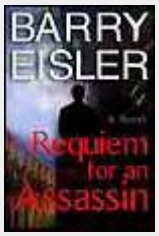
Requiem for an Assassin
By Barry Eisler




*Putnam; 369 pages; $24.95*

Buy it at
Amazon.com
Amazon.co.uk

outing.

You would barricade your door, in vain, to keep Rain out, but Arkady Renko should be invited straight in. Crumpled, humorous, indomitable, the Russian investigator makes a welcome return in “Stalin's Ghost”. Passengers on the Moscow metro keep seeing visions of the dictator, dead for more than five decades. Renko's probe quickly leads him to the bloody horrors of Chechnya. One by one his sources die in traffic accidents, police cells, even public parks. His personal life is a mess: he is shot and almost garrotted.

Martin Cruz Smith knows his Russia. Every page reeks of Moscow: dirty snow, the stink of cigarette and vodka fumes, the cynicism and tasteless opulence of the mafia, the all-pervasive corruption. Renko too has his ghosts: most of all that of his brutal father, a general who was once one of Stalin's favourites. Like the Red Army facing the Nazis, Renko refuses to give up, surrendering neither his investigation nor those he loves. In this subtle, moving book, he is an everyman, whose loyalty and courage speak to all of us.

The Unknown Terrorist.
By Richard Flanagan.
*Grove Press; 336 pages; $24.*
*Atlantic Books; £14.99*

Restitution.
By Lee Vance.
*Knopf; 320 pages; $23.95*

Requiem for an Assassin.
By Barry Eisler.
*Putnam; 369 pages; $24.95*

Stalin's Ghost.
By Martin Cruz Smith.
*Simon & Schuster; 333 pages; $26.95.*
*Macmillan; £17.99*

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By Martin Cruz Smith

*Simon & Schuster; 333 pages; $26.95.*
*Macmillan; £17.99*

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Khmer art

# Gods on display

Jun 7th 2007
From The Economist print edition

**An exciting exhibition in Berlin awakes a plea for the return of stolen treasures**

FOR many, the word Angkor evokes a single temple packed with tourists eager to see what's left of a corner of Asia's ancient past. “Angkor: Sacred Heritage of Cambodia”, an exhibition in Berlin, corrects this impression. Spanning more than 1,000 years of Hindu- and Buddhist-inspired art—stone sculptures, a handful of stunning bronzes and a coda of wooden statues—the show makes clear that Angkor was a sophisticated complex led by a succession of kings who held sway over the Khmer people and hundreds of square miles of land studded with beautiful art created for the glory of the gods.

There are two stories that unfold in the cool lofty rooms of Berlin's 19th-century Martin-Gropius-Bau museum—a far cry from the sweaty heat of the National Museum of Phnom Penh, which has lent many of the exhibits. First, are the splendid sculptures dominated by a procession of the Hindu deities, Vishnu and Shiva, plus Harihara, who represents a mixture of both. One of the most striking is the serene face and upper body of Vishnu in a sleeping pose, an 11th-century fragment of what is believed to have been the largest bronze statue ever cast in Cambodia.

Gollings, St Kilda, Australien

**Hevajra, a Buddhist deity, graces Berlin**

The second story is less obvious and probably unintended by the show's organisers. It is to do with the wholesale looting of the temples that began when the French swept into Angkor 150 years ago. In the style of European colonisers of the period, acquisitive French explorers strapped prize statues onto the backs of locals for the trip out of the jungle, then loaded them onto rafts for the journey down the Mekong river for dispatch to Paris. Many ended up as the core of the collection of Asian art at Paris's Musée Guimet.

More shocking has been the rape of Khmer art since Cambodia's independence. Little free-standing statuary is left at the temples. Cambodian and Thai soldiers, acting for well-organised rings, have hacked at much of it leaving pedestals empty, walls with holes and, in some cases, headless and armless torsos.

Unfortunately, as a star statue in Berlin shows, possessions of the National Museum in Phnom Penh were not always safe, either. A well-girthed Shiva, clasping a lotus in one outstretched hand, and his diminutive wife, Uma, in the other is placed prominently in one of the Berlin rooms. But Uma's head is missing. The Berlin curators don't say so on their description, but her head was stolen—literally hacked off—when the piece was on show at the Phnom Penh museum in the 1970s.

Security, upkeep and finance have all greatly improved at the museum since then. Indeed, the sculptures look a little lost away from their usual habitat in the more informal setting of Phnom Penh. There, the galleries open on to a courtyard filled with coconut palms and vermillion flowers, allowing a visitor to daydream about the landscape where the original artists of Angkor worked.

In their temporary home in Berlin, the sculptures are given descriptions that are a little thin. A visitor would do well to invest in “Art and Architecture of Cambodia”, a history by Helen Ibbitson Jessup, the curator of the blockbuster Khmer exhibition that took place at Washington's National Gallery of Art in 1997, which is available at the museum bookstore.

With the Phnom Penh collection now recognised as a great repository of Khmer art, might some collectors consider repatriating at least part of their booty to its rightful place? Many possessors of stolen Khmer art

argue that it is safer in their hands than it would be in Cambodia, but this may no longer be the case. Where, for a start, is Uma's head?

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"Angkor: Sacred Heritage of Cambodia" is at Martin-Gropius-Bau, Berlin, until July 29th. It is then at Museum Rietberg, Zurich, from August 19th until December 2nd.

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# Indar Jit Rikhye

Jun 7th 2007
From The Economist print edition

**Major-General Indar Jit Rikhye, an Indian peacekeeper, died on May 21st, aged 86**

AP

Get article background

SUCH a meeting was not easily forgotten. The small, bald, wiry man, dressed in a *dhoti* and leaning on a staff, peered through his spectacles at the 17-year-old schoolboy, who was too abashed to speak. “This silly boy wants to go into the army,” his father was saying. Mahatma Gandhi did not miss a beat. “But that is good!” he cried. “We need good, educated young officers in the army of free India!”

Indar Jit Rikhye did not get the lecture on peace he expected. That was as well, for with his young head full of military parades, war novels and tales of his family connections with Maharajah Ranjit Singh, “the Lion of Punjab”, he was not inclined to listen. But Gandhi was wise, and possibly foresaw that Indar Jit's life as a soldier was in fact to be all about peace.

His most famous test came in Gaza in 1967, just before the six-day war between Egypt and Israel. General Rikhye, then commander of the United Nations Emergency Force, was asked by the Egyptians to withdraw from the buffer zone where, for a while, UN peacekeepers had been preserving calm. Unflustered, he played for time; and when Israel launched its attack on Egypt, the peacekeepers were caught in the middle. Several were killed; the HQ was destroyed by shelling; the tyres were shot out on their military jeeps, and only by bumping on the hubs could they flee to the beach at Gaza to radio for rescue. “We are not fighting anybody”, General Rikhye told New York, via Cyprus, “but we are under fire.” A peacekeeper's life.

He knew the Middle East; his career as a peacekeeper had begun there in 1956, sent out by Jawaharlal Nehru in a flush of enthusiasm to prove the neutral credentials of newly independent India. This was the UN's first armed peacekeeping force, stationed along the Suez Canal. General Rikhye, by then a soldier of much experience in both the British and Indian armies, thought it an odd outfit, combining all levels of expertise and none, and with national liaison officers reporting to their own governments. When he was made chief of staff the next year he shook things up, and everyone reported to him.

Other problems were less tractable. Chief among them was the Middle East itself. It was not the most difficult of his peacekeeping assignments: that, he decided, was probably Congo, where the UN force in 1960 was forced to recognise a de facto authority that was both illegitimate and murderous. But the Middle East was a place where ancient grievances marred all hope of peace. The general did not believe he would ever see it there.

Peacekeepers were even resented for doing their job. General Rikhye, a man not easily rattled, was shocked to find his UN plane fired on, and almost forced down, by Israeli jets in 1967. And in 1982, with UN troops installed in another buffer zone in Lebanon after the Israeli invasion, he was outraged to find them hemmed in by Israeli and PLO road-blocks on each side, “like the salami in a sandwich”.

Any soldier—as he reflected in “The Thin Blue Line”, his recommendations on peacekeeping, in 1974—would find it emotionally difficult to be fired on and not fire back. He found it hard himself. But peacekeeping was not about force; it was about providing time, with the consent of the disputing parties, for diplomacy to work. This refereeing job required different skills: quiet reasoning, non-alignment to the point of total detachment, tact and “the patience of a Job.” It did not need “the self-loading rifle”. The UN, politically divided and a bureaucratic tangle, was not always ideal for the job. But General Rikhye was sure it was all the world had.

After long service there—in Indonesia, Cuba and Yemen, and as military adviser to two secretary-generals—he set up the International Peace Academy in New York. Military officers and diplomats in mid-career were sent there to sort out simulated conflicts, from the first explosion of violence to the passing of resolutions in the Security Council and the imposition of a ceasefire. Most important, in General Rikhye's view, peacekeepers bound for particular trouble spots were instructed in the history and emotions behind the troubles, so that they would understand.

## Hobnobbing with Zia

He had his own reasons for becoming one of the world's best peacekeepers. He was born in Lahore, in the Punjab, and joined the undivided Indian army in 1941 in the Punjabi Muslim squadron of the 6th Lancers. Although a Hindu himself, he liked being with Muslims. When, on partition in 1947, he was asked to declare which state he wished to serve, he chose Pakistan. But as a Hindu, he was repatriated to India.

He went back once to Lahore in 1982 as the guest of Zia ul-Haq. Zia, then president of Pakistan, had once been his subordinate; General Rikhye had got him his permanent commission as a lieutenant over the suspicions of the British. At a time of poisonous relations between India and Pakistan, the two men met as old friends.

In his last years, living contentedly in America, General Rikhye would often wish aloud that Pakistan and India could bridge their differences and combine their armies. Together, they could make a huge contribution to keeping the peace of the world. Indeed, it was perhaps just such an army that Gandhi had imagined and, with a smile, had committed him to.

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# Overview

Jun 7th 2007
From The Economist print edition

The **European Central Bank** (ECB) raised its key interest rate by 0.25 percentage points, to 4%. The bank has now raised rates eight times since December 2005, but its policy remains on “the accommodative side”, it said. The euro-area economy is still expanding nicely. The volume of retail sales grew by 1.6% in the year to April, and unemployment fell to 7.1%, compared with 7.7% six months before. Inflation is, for the moment, on the ECB's target: consumer prices rose by 1.9% in the year to May.

**America's** progress is less smooth. Revised figures showed that its GDP grew at an annual rate of just 0.6% in the first quarter, its slowest since the last quarter of 2002. But businesses, excluding farms, added 157,000 workers to their payrolls in May, a faster pace of hiring than the average for this year. The yield on two-year Treasury bonds rose past 5%, reflecting a belief that America's economy will not need the Federal Reserve to bail it out in the near future.

**Australia's** GDP grew at an annual rate of 6.6% in the first quarter, despite a lingering drought. The central bank left interest rates unchanged at 6.25%.

Inflation in **Turkey** fell back into single digits. Consumer prices rose by 9.2% in the year to May.

The euro area will grow by 2.6% this year, according to our monthly poll of **economic forecasters** (see table). This is a bolder prediction than a month ago, when the euro area was expected to grow by 2.4%.

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# Output, prices and jobs

Jun 7th 2007
From The Economist print edition

## Output, prices and jobs

% change on year ago

| | Gross domestic product | | | | Industrial production | Consumer prices | | | Unemployment |
|---|---|---|---|---|---|---|---|---|---|
| | latest | qtr* | 2007† | 2008† | latest | latest | year ago | 2007† | rate‡, % |
| United States | +1.9 Q1 | +0.6 | +2.0 | +2.7 | +1.9 Apr | +2.6 Apr | +3.5 | +2.5 | 4.5 May |
| Japan | +2.0 Q1 | +2.4 | +2.3 | +2.3 | +2.3 Apr | nil Apr | –0.1 | nil | 3.8 Apr |
| China | +11.1 Q1 | na | +10.3 | +9.7 | +17.4 Apr | +3.0 Apr | +1.2 | +2.8 | 9.8 2006 |
| Britain | +2.9 Q1 | +2.9 | +2.7 | +2.5 | –0.2 Mar | +2.8 Apr** | +2.0 | +2.4 | 5.5 Mar†† |
| Canada | +2.0 Q1 | +3.7 | +2.4 | +2.7 | –0.9 Mar | +2.2 Apr | +2.4 | +2.0 | 6.1 Apr |
| Euro area | +3.0 Q1 | +2.4 | +2.6 | +2.2 | +3.7 Mar | +1.9 May | +2.5 | +1.9 | 7.1 Apr |
| Austria | +3.5 Q1 | +3.6 | +2.9 | +2.6 | +6.8 Mar | +1.8 Apr | +1.9 | +1.6 | 4.4 May |
| Belgium | +2.9 Q1 | +2.9 | +2.5 | +2.3 | +2.0 Mar | +1.3 May | +2.2 | +1.8 | 11.0 Apr‡‡ |
| France | +2.1 Q1 | +2.4 | +2.1 | +2.2 | +1.1 Mar | +1.3 Apr | +1.7 | +1.4 | 8.2 Apr |
| Germany | +3.6 Q1 | +2.1 | +2.7 | +2.3 | +7.7 Mar | +1.9 May | +1.9 | +1.9 | 9.2 May |
| Greece | +4.6 Q1 | na | +3.3§ | +3.2§ | +0.1 Mar | +2.5 Apr | +3.3 | +2.6§ | 9.0 Feb |
| Italy | +2.3 Q1 | +0.8 | +2.0 | +1.7 | +1.6 Mar | +1.6 May | +2.2 | +1.9 | 6.5 Q4 |
| Netherlands | +2.5 Q1 | +2.3 | +2.6 | +2.5 | +5.8 Apr | +1.8 May | +1.7 | +1.7 | 4.7 Apr†† |
| Spain | +4.1 Q1 | +4.6 | +3.6 | +2.8 | +6.5 Apr | +2.4 Apr | +3.9 | +2.6 | 8.2 Apr |
| Czech Republic | +5.8 Q4 | +5.8 | +5.3 | +4.9 | +12.7 Mar | +2.5 Apr | +2.8 | +2.6 | 6.8 Apr |
| Denmark | +2.9 Q4 | +1.5 | +2.2 | +2.2 | +1.6 Apr | +1.7 Apr | +1.8 | +1.8 | 3.7 Apr |
| Hungary | +2.9 Q1 | +2.8 | +2.6 | +3.1 | +10.6 Apr | +8.8 Apr | +2.3 | +6.8 | 7.5 Apr†† |
| Norway | +2.8 Q1 | +2.9 | +2.7§ | +2.4§ | +6.1 Apr | +0.3 Apr | +2.7 | +1.6§ | 2.7 Mar†† |
| Poland | +7.4 Q1 | na | +6.0 | +5.3 | +12.4 Apr | +2.3 Apr | +0.7 | +2.2 | 13.0 May‡‡ |
| Russia | +7.9 Q1 | na | +6.7 | +6.4 | +4.6 Apr | +7.6 May | +9.5 | +8.2 | 7.0 Apr‡‡ |
| Sweden | +3.0 Q1 | +2.6 | +3.7 | +3.1 | +9.0 Mar | +1.9 Apr | +1.5 | +1.7 | 4.6 Apr‡‡ |
| Switzerland | +2.4 Q1 | +3.2 | +2.2 | +2.1 | +8.9 Q4 | +0.5 May | +1.4 | +0.6 | 2.7 May‡‡ |
| Turkey | +5.2 Q4 | na | +4.6 | +5.7 | +2.6 Mar | +9.2 May | +9.9 | +8.3 | 11.4 Q1‡‡ |
| Australia | +3.8 Q1 | +6.6 | +3.0 | +3.2 | +3.7 Q4 | +2.4 Q1 | +3.0 | +2.5 | 4.2 May |
| Hong Kong | +5.6 Q1 | +2.0 | +5.3 | +4.9 | –1.4 Q4 | +1.3 Apr | +1.9 | +2.4 | 4.3 Apr†† |
| India | +9.1 Q1 | na | +8.1 | +7.6 | +12.9 Mar | +6.7 Apr | +5.0 | +5.7 | 7.6 2006 |
| Indonesia | +6.0 Q1 | na | +6.0 | +5.8 | +11.9 Mar | +6.0 May | +15.6 | +6.5 | 10.3 2005 |
| Malaysia | +5.3 Q1 | na | +5.4 | +5.6 | +0.4 Apr | +1.5 Apr | +4.6 | +2.3 | 3.0 Q4 |
| Pakistan | +6.6 2006§§ | na | +6.9§ | +6.0§ | +6.8 Sep | +6.9 Apr | +6.2 | +6.7§ | na |
| Singapore | +6.1 Q1 | +7.6 | +5.5 | +5.7 | +18.8 Apr | +0.6 Apr | +1.1 | +1.6 | 2.9 Q1 |
| South Korea | +4.0 Q1 | +3.6 | +4.3 | +4.6 | +6.7 Apr | +2.3 May | +2.3 | +2.2 | 3.3 Apr |
| Taiwan | +4.2 Q1 | na | +4.2 | +4.6 | +2.6 Apr | nil May | +1.6 | +1.3 | 4.0 Apr |
| Thailand | +4.3 Q1 | +4.9 | +4.0 | +4.7 | +6.7 Apr | +1.9 May | +6.2 | +2.5 | 1.5 Feb |
| Argentina | +8.6 Q4 | +7.4 | +7.5 | +5.7 | +6.8 Apr | +8.8 May | +11.5 | +9.8 | 9.7 Q1‡‡ |
| Brazil | +4.8 Q4 | +3.6 | +3.9 | +3.7 | +6.0 Apr | +3.2 May | +4.2 | +3.6 | 10.1 Apr‡‡ |
| Chile | +5.8 Q1 | na | +5.2 | +5.1 | +5.2 Apr | +2.9 May | +3.7 | +2.6 | 6.8 Apr†‡‡ |
| Colombia | +8.0 Q4 | nil | +5.4 | +4.6 | +15.1 Mar | +6.2 May | +4.0 | +5.1 | 12.0 Mar‡‡ |
| Mexico | +2.6 Q1 | +0.6 | +3.2 | +3.8 | +0.2 Mar | +4.0 Apr | +3.2 | +3.8 | 3.6 Apr‡‡ |
| Venezuela | +11.8 Q4 | na | +6.6 | +3.9 | +6.7 Jan | +19.5 May | +10.4 | +17.6 | 10.3 Q1‡‡ |
| Egypt | +7.4 Q1 | na | +6.3 | +5.6 | +10.5 2006 | +11.7 Apr | +4.4 | +9.9 | 9.0 Q4‡‡ |
| Israel | +5.4 Q1 | +6.3 | +4.7 | +4.3 | +5.2 Mar | –1.3 Apr | +3.8 | +0.9 | 7.7 Q1 |
| Saudi Arabia | +3.4 2006 | na | +4.0§ | +5.0§ | na | +2.9 Mar | +2.5 | +2.5§ | na |
| South Africa | +5.4 Q1 | +4.7 | +4.8 | +4.9 | +3.8 Apr | +7.0 Apr | +3.3 | +5.4 | 25.5 Sep‡‡ |
| **MORE COUNTRIES** Data for the countries below are not provided in printed editions of *The Economist* | | | | | | | | | |
| Estonia | +9.9 Q1 | +9.5 | +9.4§ | +7.4§ | +8.0 Apr | +5.7 May | +4.7 | +5.1§ | 4.9 Mar |
| Finland | +5.3 Q4 | +3.8 | +2.7§ | +2.5§ | –1.4 Apr | +2.6 Apr | +1.3 | +1.4§ | 6.6 Apr |
| Iceland | +2.5 Q4 | +7.8 | +1.3§ | +2.7§ | na | +4.7 May | +7.6 | +5.0§ | 1.1 Apr‡‡ |
| Ireland | +5.0 Q4 | +0.1 | +5.0§ | +3.4§ | +10.7 Mar | +5.1 Apr | +3.7 | +4.2§ | 4.3 Apr |
| Latvia | +10.7 Q1 | na | +9.2§ | +7.5§ | +1.0 Mar | +8.9 Apr | +6.1 | +7.6§ | 5.6 Mar |
| Lithuania | +8.3 Q1 | +6.1 | +7.0§ | +6.4§ | na | +4.8 Apr | +3.4 | +1.9§ | 5.5 Mar |
| Luxembourg | +5.0 Q4 | +7.0 | +4.7§ | +5.0§ | +2.8 Feb | +2.1 Apr | +2.9 | +2.2§ | 4.4 Apr‡‡ |
| New Zealand | +2.9 Q4 | +5.0 | +3.1§ | +3.1§ | –0.4 Q4 | +2.5 Q1 | +3.3 | +2.2§ | 3.8 Q1 |
| Peru | +5.6 Mar | na | +6.7 | +5.6 | +7.7 Mar | +0.9 May | +2.2 | +1.1 | 9.3 Apr‡‡ |
| Philippines | +6.9 Q3 | +10.3 | +5.7 | +5.8 | –7.6 Mar | +2.4 May | +6.9 | +3.9 | 7.6 Q1‡‡ |
| Portugal | +2.1 Q1 | +3.2 | +1.6§ | +2.1§ | +3.8 Apr | +2.7 Apr | +3.7 | +2.2 | 8.4 Q1‡‡ |
| Slovakia | +8.9 Q1 | na | +8.0§ | +6.0§ | +12.5 Mar | +2.7 Apr | +4.5 | +2.4 | 10.8 Mar |
| Slovenia | +5.5 Q4 | na | +4.7§ | +4.1§ | +9.3 Mar | +2.9 May | +3.2 | +2.3 | 8.1 Mar‡‡ |

*% change on previous quarter, annual rate. †*The Economist* poll. ‡National definitions. §Economist Intelligence Unit estimate/forecast. **RPI inflation rate 4.5% in Apr. ††Latest three months. ‡‡Not seasonally adjusted. §§Year ending June.

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# *The Economist* commodity-price index

Jun 7th 2007
From The Economist print edition

## *The Economist* commodity-price index

2000=100

| | May 29th | Jun 5th* | % change on one month | % change on one year |
|---|---|---|---|---|
| **Dollar index** | | | | |
| All items | 201.8 | 206.7 | +1.9 | +18.4 |
| Food | 162.8 | 168.0 | +7.8 | +23.5 |
| Industrials | | | | |
| All | 252.3 | 256.6 | -2.7 | +14.4 |
| Nfa† | 164.4 | 166.2 | +5.1 | +2.6 |
| Metals | 300.3 | 306.0 | -4.7 | +18.5 |
| **Sterling index** | | | | |
| All items | 154.5 | 157.3 | +1.7 | +10.5 |
| **Euro index** | | | | |
| All items | 138.4 | 141.3 | +1.9 | +12.2 |
| **Gold** | | | | |
| $ per oz | 657.90 | 671.80 | -2.1 | +7.2 |
| **West Texas Intermediate** | | | | |
| $ per barrel | 63.26 | 65.60 | +5.4 | -9.4 |

*Provisional †Non-food agriculturals.

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# *The Economist* poll of forecasters, June averages

Jun 7th 2007
From The Economist print edition

## *The Economist* poll of forecasters, June averages (previous month's, if changed)

| | Real GDP, % change Low/high range | | Real GDP, % change average | | Consumer prices % increase | | Current account % of GDP | |
|---|---|---|---|---|---|---|---|---|
| | 2007 | 2008 | 2007 | 2008 | 2007 | 2008 | 2007 | 2008 |
| Australia | 2.6/3.4 | 2.2/4.4 | 3.0 | 3.2 | 2.5 (2.6) | 2.5 | –5.3 | –5.1 (–5.3) |
| Belgium | 2.1/2.7 | 1.9/2.7 | 2.5 (2.4) | 2.3 (2.2) | 1.8 | 1.9 | 2.0 (1.8) | 2.1 (1.7) |
| Britain | 2.1/3.1 | 2.1/3.1 | 2.7 | 2.5 | 2.4 (2.3) | 1.9 | –3.1 (–3.0) | –3.2 (–3.3) |
| Canada | 1.7/3.0 | 2.4/3.0 | 2.4 (2.3) | 2.7 | 2.0 (1.9) | 2.2 | 1.2 (1.1) | 1.1 (0.9) |
| France | 1.8/2.5 | 1.7/2.6 | 2.1 | 2.2 (2.1) | 1.4 | 1.8 | –1.3 | –1.2 |
| Germany | 2.2/3.1 | 1.6/2.9 | 2.7 (2.3) | 2.3 (2.1) | 1.9 (1.8) | 1.6 (1.5) | 4.8 (4.9) | 4.7 (4.9) |
| Italy | 1.2/2.5 | 1.2/2.3 | 2.0 (1.9) | 1.7 (1.6) | 1.9 | 2.0 | –2.1 (–1.9) | –2.2 (–2.0) |
| Japan | 1.8/2.9 | 1.8/2.7 | 2.3 (2.4) | 2.3 (2.2) | nil | 0.3 (0.5) | 4.3 (4.0) | 4.2 (3.9) |
| Netherlands | 2.0/3.1 | 1.7/2.9 | 2.6 | 2.5 | 1.7 (1.6) | 1.9 (1.8) | 8.2 (7.6) | 7.5 (7.3) |
| Spain | 2.8/3.8 | 2.4/3.2 | 3.6 (3.5) | 2.8 | 2.6 | 2.9 | –8.8 | –8.3 (–8.4) |
| Sweden | 3.3/4.1 | 2.6/3.6 | 3.7 (3.8) | 3.1 | 1.7 (1.6) | 1.9 | 6.6 | 6.1 (6.2) |
| Switzerland | 1.7/2.6 | 1.8/2.4 | 2.2 (2.1) | 2.1 (2.0) | 0.6 | 1.2 | 15.7 (15.9) | 15.3 |
| United States | 1.7/2.3 | 2.2/3.2 | 2.0 (2.1) | 2.7 | 2.5 (2.4) | 2.3 | –6.2 (–6.1) | –6.1 (–6.0) |
| Euro area | 2.3/2.9 | 1.7/2.7 | 2.6 (2.4) | 2.2 (2.1) | 1.9 | 1.9 (2.0) | 0.1 (–0.1) | 0.1 nil |

Sources: ABN AMRO, BNP Paribas, Citigroup, Decision Economics, Deutsche Bank, Economist Intelligence Unit, Goldman Sachs, HSBC Securities, KBC Bank, JPMorgan Chase, Morgan Stanley, Scotiabank, UBS

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# Trade, exchange rates, budget balances and interest rates

Jun 7th 2007
From The Economist print edition

## Trade, exchange rates, budget balances and interest rates

| | Trade balance* latest 12 months, $bn | Current-account balance latest 12 months, $bn | Current-account balance % of GDP 2007† | Currency units, per $ Jun 6th | Currency units, per $ year ago | Budget balance % of GDP 2007‡ | Interest rates, % 3-month latest | Interest rates, % 10-year gov't bonds, latest |
|---|---|---|---|---|---|---|---|---|
| United States | −827.2 Mar | −856.7 Q4 | −6.2 | – | – | −1.7 | 5.24 | 4.96 |
| Japan | +89.8 Mar | +181.5 Mar | +4.3 | 121 | 114 | −4.4 | 0.58 | 1.18 |
| China | +207.3 Apr | +249.9 2006 | +8.1 | 7.64 | 8.02 | −1.6 | 3.05 | 3.87 |
| Britain | −157.6 Mar | −80.1 Q4 | −3.1 | 0.50 | 0.54 | −2.6 | 5.80 | 5.26 |
| Canada | +46.3 Mar | +18.5 Q1 | +1.2 | 1.06 | 1.11 | 1.3 | 4.30 | 4.52 |
| Euro area | +3.2 Mar | +9.9 Mar | +0.1 | 0.74 | 0.78 | −0.8 | 4.13 | 4.45 |
| Austria | +0.3 Mar | +10.3 Q4 | +2.4 | 0.74 | 0.78 | −0.8 | 4.13 | 4.50 |
| Belgium | +19.9 Mar | +7.8 Dec | +2.0 | 0.74 | 0.78 | 0.1 | 4.18 | 4.50 |
| France | −34.2 Mar | −32.2 Mar | −1.3 | 0.74 | 0.78 | −2.7 | 4.13 | 4.48 |
| Germany | +220.4 Mar | +165.0 Mar | +4.8 | 0.74 | 0.78 | 0.2 | 4.13 | 4.44 |
| Greece | −45.7 Mar | −31.7 Mar | −8.4‡ | 0.74 | 0.78 | −2.2 | 4.13 | 4.61 |
| Italy | −23.1 Mar | −45.6 Mar | −2.1 | 0.74 | 0.78 | −2.6 | 4.13 | 4.63 |
| Netherlands | +43.4 Mar | +16.8 Q1 | +8.2 | 0.74 | 0.78 | 0.6 | 4.13 | 4.48 |
| Spain | −116.6 Mar | −112.1 Feb | −8.8 | 0.74 | 0.78 | 1.7 | 4.13 | 4.49 |
| Czech Republic | +2.6 Apr | −5.5 Mar | −3.8 | 21.1 | 22.1 | −4.1 | 2.87 | 4.42 |
| Denmark | +6.4 Mar | +5.5 Mar | +2.5 | 5.52 | 5.84 | 3.6 | 4.35 | 4.51 |
| Hungary | −2.0 Mar | −6.5 Q4 | −4.7 | 187 | 205 | −6.4 | 7.79 | 6.53 |
| Norway | +54.3 Apr | +57.3 Q1 | +14.9‡ | 5.99 | 6.11 | 18.8 | 4.71 | 5.10 |
| Poland | −6.2 Mar | −8.7 Mar | −2.6 | 2.84 | 3.09 | −2.4 | 4.46 | 5.37 |
| Russia | +131.3 Mar | +85.8 Q1 | +5.7 | 25.8 | 26.8 | 6.0 | 10.50 | 6.01 |
| Sweden | +19.7 Apr | +29.8 Q1 | +6.6 | 6.92 | 7.21 | 2.2 | 3.32 | 4.30 |
| Switzerland | +10.3 Apr | +106.1 Q4 | +15.7 | 1.22 | 1.22 | 0.3 | 2.48 | 3.04 |
| Turkey | −53.0 Apr | −31.4 Apr | −7.0 | 1.32 | 1.56 | −2.7 | 19.05 | 6.65§ |
| Australia | −10.8 Apr | −43.8 Q1 | −5.3 | 1.19 | 1.35 | 1.3 | 6.44 | 6.10 |
| Hong Kong | −19.0 Apr | +20.6 Q4 | +9.8 | 7.81 | 7.76 | 2.0 | 4.55 | 4.54 |
| India | −61.3 Apr | −10.0 Q4 | −1.8 | 40.7 | 45.8 | −3.4 | 7.37 | 8.41 |
| Indonesia | +41.5 Apr | +9.6 Q4 | +2.2 | 8,905 | 9,373 | −1.4 | 8.56 | 6.33§ |
| Malaysia | +28.6 Mar | +25.6 Q4 | +13.5 | 3.42 | 3.66 | −3.3 | 3.62 | 5.53§ |
| Pakistan | −13.6 Apr | −6.8 Q1 | −5.6‡ | 60.6 | 60.1 | −4.6 | 9.64 | 6.86§ |
| Singapore | +35.0 Apr | +38.1 Q1 | +23.3 | 1.53 | 1.59 | 0.3 | 2.38 | 2.81 |
| South Korea | +16.6 May | +5.2 Apr | +0.2 | 927 | 948 | 0.5 | 5.04 | 5.22 |
| Taiwan | +14.5 May | +28.1 Q1 | +6.7 | 33.0 | 32.2 | −2.3 | 2.85 | 2.47 |
| Thailand | +7.0 Apr | +8.8 Apr | +2.1 | 34.6 | 38.3 | −1.5 | 3.75 | 3.80 |
| Argentina | +11.4 Apr | +8.1 Q4 | +2.5 | 3.08 | 3.08 | 1.0 | 9.38 | na |
| Brazil | +47.6 May | +13.6 Mar | +0.8 | 1.96 | 2.26 | −2.2 | 12.43 | 6.16§ |
| Chile | +24.0 Apr | +5.3 Q4 | +1.3 | 527 | 543 | 5.2 | 5.28 | 5.55§ |
| Colombia | −0.9 Feb | −2.9 Q4 | −2.7 | 1,889 | 2,484 | −0.9 | 7.78 | 6.05§ |
| Mexico | −10.2 Apr | −5.5 Q1 | −1.4 | 10.8 | 11.3 | −0.2 | 7.21 | 7.66 |
| Venezuela | +28.2 Q1 | +23.8 Q1 | +9.8 | 2,147 | 2,571 | −4.7 | 10.47 | 6.55§ |
| Egypt | −12.6 Q4 | +2.7 Q4 | +1.5 | 5.70 | 5.76 | −5.5 | 7.12 | 5.63§ |
| Israel | −7.5 Apr | +6.8 Q4 | +3.6 | 4.11 | 4.47 | −1.0 | 3.60 | 4.51 |
| Saudi Arabia | +148.5 2006 | +95.4 2006 | +20.1‡ | 3.75 | 3.75 | 13.2 | 5.05 | na |
| South Africa | −9.9 Apr | −16.3 Q4 | −6.0 | 7.21 | 6.74 | 0.5 | 9.40 | 8.06 |
| **MORE COUNTRIES** | Data for the countries below are not provided in printed editions of *The Economist* | | | | | | | |
| Estonia | −3.8 Mar | −2.6 Mar | −14.5‡ | 11.6 | 12.2 | 1.3 | 4.68 | na |
| Finland | +12.3 Mar | +13.7 Mar | +5.7‡ | 0.74 | 0.78 | 3.4 | 4.09 | 4.48 |
| Iceland | −1.8 Apr | −4.0 Q1 | −18.7‡ | 62.7 | 73.3 | 1.8 | 13.75 | na |
| Ireland | +34.0 Mar | −7.2 Q4 | −4.1‡ | 0.74 | 0.78 | 0.5 | 4.13 | 4.47 |
| Latvia | −5.6 Mar | −5.2 Mar | −20.0‡ | 0.52 | 0.54 | nil | 7.22 | na |
| Lithuania | −5.7 Mar | −3.5 Mar | −10.3‡ | 2.56 | 2.70 | −0.5 | 4.90 | na |
| Luxembourg | −5.3 Mar | +4.4 Q4 | na | 0.74 | 0.78 | 0.3 | 4.13 | na |
| New Zealand | −4.0 Apr | +6.2 Q4 | −10.3‡ | 1.33 | 1.60 | 3.1 | 6.95 | 6.54 |
| Peru | +9.0 Mar | +2.7 Q1 | +1.8 | 3.17 | 3.27 | 0.1 | 4.50 | na |
| Philippines | −3.9 Mar | +5.0 Dec | +3.6 | 45.9 | 52.9 | −1.0 | 6.31 | na |
| Portugal | −23.0 Feb | −17.8 Feb | −7.5‡ | 0.74 | 0.78 | −3.3 | 4.13 | 4.59 |
| Slovakia | −2.5 Mar | −3.9 Jan | −4.3‡ | 25.4 | 29.6 | −3.0 | 4.14 | 4.48 |
| Slovenia | −1.9 Mar | −1.3 Mar | −2.2‡ | 0.74 | 0.78 | −1.2 | na | na |

*Merchandise trade only. †*The Economist* poll. ‡Economist Intelligence Unit forecast. §Dollar-denominated bonds.

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# Markets

Jun 7th 2007
From The Economist print edition

## Markets

| | Index Jun 6th | % change on one week | % change on Dec 29th 2006 in local currency | % change on Dec 29th 2006 in $ terms |
|---|---|---|---|---|
| United States (DJIA) | 13,465.7 | –1.2 | +8.0 | +8.0 |
| United States (S&P 500) | 1,517.4 | –0.8 | +7.0 | +7.0 |
| United States (NAScomp) | 2,587.2 | –0.2 | +7.1 | +7.1 |
| Japan (Nikkei 225) | 18,040.9 | +2.6 | +4.7 | +3.1 |
| Japan (Topix) | 1,778.5 | +2.6 | +5.8 | +4.2 |
| China (SSEA) | 3,959.6 | –6.8 | +40.7 | +43.8 |
| China (SSEB, $ terms) | 283.7 | –6.3 | +113.3 | +118.1 |
| Britain (FTSE 100) | 6,522.7 | –1.2 | +4.9 | +6.7 |
| Canada (S&P TSX) | 13,941.6 | –1.0 | +8.0 | +18.8 |
| Euro area (FTSE Euro 100) | 1,391.9 | –0.8 | +8.9 | +11.4 |
| Euro area (DJ STOXX 50) | 4,437.3 | –0.7 | +7.7 | +10.2 |
| Austria (ATX) | 4,780.6 | –0.9 | +7.1 | +9.6 |
| Belgium (Bel 20) | 4,587.9 | –1.4 | +4.5 | +7.0 |
| France (CAC 40) | 5,977.9 | –1.1 | +7.9 | +10.4 |
| Germany (DAX)* | 7,730.1 | –0.4 | +17.2 | +19.9 |
| Greece (Athex Comp) | 4,873.1 | –0.8 | +10.9 | +13.5 |
| Italy (S&P/MIB) | 42,307.0 | –1.5 | +2.1 | +4.5 |
| Netherlands (AEX) | 537.5 | +0.5 | +8.5 | +11.0 |
| Spain (Madrid SE) | 1,647.3 | –1.4 | +5.9 | +8.4 |
| Czech Republic (PX) | 1,838.5 | +1.0 | +15.7 | +14.7 |
| Denmark (OMXCB) | 472.6 | –1.1 | +11.4 | +14.1 |
| Hungary (BUX) | 26,517.9 | +2.1 | +6.7 | +8.5 |
| Norway (OSEAX) | 557.6 | +0.6 | +11.0 | +15.3 |
| Poland (WIG) | 63,527.0 | +1.9 | +26.0 | +28.8 |
| Russia (RTS, $ terms) | 1,823.6 | +5.7 | –6.8 | –5.1 |
| Sweden (Aff.Gen) | 410.9 | +1.4 | +12.5 | +11.2 |
| Switzerland (SMI) | 9,277.5 | –1.1 | +5.6 | +5.9 |
| Turkey (ISE) | 45,861.0 | –0.9 | +17.2 | +25.5 |
| Australia (All Ord.) | 6,367.4 | +1.5 | +12.8 | +20.3 |
| Hong Kong (Hang Seng) | 20,818.6 | +2.6 | +4.3 | +3.8 |
| India (BSE) | 14,255.9 | –1.1 | +3.4 | +12.5 |
| Indonesia (JSX) | 2,102.4 | +2.3 | +16.4 | +17.6 |
| Malaysia (KLSE) | 1,372.4 | +2.5 | +25.2 | +29.1 |
| Pakistan (KSE) | 13,212.1 | +3.2 | +31.6 | +32.2 |
| Singapore (STI) | 3,563.8 | +1.5 | +19.4 | +19.4 |
| South Korea (KOSPI) | 1,742.2 | +4.8 | +21.5 | +21.8 |
| Taiwan (TWI) | 8,314.7 | +2.1 | +6.3 | +4.9 |
| Thailand (SET) | 759.4 | +3.0 | +11.7 | +16.8 |
| Argentina (MERV) | 2,206.2 | –0.7 | +5.5 | +5.2 |
| Brazil (BVSP) | 52,049.0 | –0.9 | +17.0 | +27.3 |
| Chile (IGPA) | 14,363.2 | +1.0 | +16.1 | +17.2 |
| Colombia (IGBC) | 10,178.2 | +1.7 | –8.8 | +8.1 |
| Mexico (IPC) | 31,681.8 | +1.0 | +19.8 | +19.6 |
| Venezuela (IBC) | 38,613.6 | –1.9 | –26.1 | +15.1 |
| Egypt (Hermes) | 69,680.0 | +0.9 | +13.7 | +13.9 |
| Israel (TA-100) | 1,118.0 | +0.9 | +21.3 | +24.3 |
| Saudi Arabia (Tadawul) | 7,363.0 | –4.5 | –7.2 | –7.2 |
| South Africa (JSE AS) | 28,538.8 | +0.3 | +14.5 | +12.0 |
| Europe (FTSEurofirst 300) | 1,586.5 | –0.8 | +6.9 | +9.4 |
| World, dev'd (MSCI) | 1,607.7 | –0.1 | +8.4 | +8.4 |
| Emerging markets (MSCI) | 1,024.0 | +2.5 | +12.2 | +12.2 |
| World, all (MSCI) | 399.8 | +0.2 | +8.7 | +8.7 |
| World bonds (Citigroup) | 660.5 | +0.1 | +0.3 | +0.3 |
| EMBI+ (JPMorgan) | 415.8 | –0.7 | +2.1 | +2.1 |
| Hedge funds (HFRX) | 1,350.7 | –0.1 | +5.9 | +5.9 |
| Volatility, US (VIX) | 14.9 | 12.8 | 11.6 | (levels) |
| CDSs, Eur (iTRAXX)† | 16.2 | 2.1 | 22.5 | 21.7 |

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# Current-account balances

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From The Economist print edition

America spends much more than it produces, resulting in a current-account deficit of 6.5% of GDP last year. One of the most prominent and enduring features of the macroeconomic landscape, America's deficit will narrow this year to 6.1% of GDP, according to the OECD's projections, before widening again to 6.2% in 2008. Spain's external deficit is even bigger relative to the size of its economy and will amount to 10.5% of GDP in 2008, the OECD projects. Turkey should be able to sustain a deficit of over 7% of GDP this year and next, the OECD forecasts, thanks to resurgent foreign direct investment and private loans. Thanks mainly to German thrift, the euro area as a whole will run a small surplus with the rest of the world.

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